

# BULLETIN OF MISCELLANEOUS INFORMATION No. 4 1928 ROYAL BOTANIC GARDENS, KEW

## XIX.—THE CORRECT SPELLING OF CERTAIN GENERIC NAMES. T. A. SPRAGUE.

The publication in *Kew Bull.* 1927, p. 320, footnote 2, of the statement that "*Mesembryanthemum* is the original and correct spelling of the name, not *Mesembrianthemum*," has evoked a letter of dissent from a correspondent, who pointed out that the historically earliest form of the name, as far as can be ascertained, was *Mesembrianthemum* Breyne, Prodr. fasc. rar. pl. secundus 67 (1689). This was accompanied by the explanation "sive Flos meridianus," so that there is no doubt that it was derived by Breyne from μεσημβρία noon, and ἄνθεμον flower, in allusion to the fact that the flowers expanded at midday.

The name *Mesembrianthemum*, however, was rejected in favour of *Mesembryanthemum* by Dillenius, Cat. Pl. circa Gissam nasc., App. 148 (1719), who derived the latter from μέσος, medius, ἔμβρυον, tenellus fetus, and ἄνθος, flos. Later on, Dillenius, Hort. Elth. 225, 226 (1732), explained his reasons for the change. He pointed out that the earliest name for the genus was *Ficoides* Herm. Hort. Acad. Lugd.-Bat. Cat. 244 (1687), *Mesembrianthemum* Breyne being two years later, and stated that of the two names he preferred the latter, but that it was unsuitable, as some of the species expand their flowers by night. He proceeded to suggest that one way out of the difficulty would be to split up the genus by excluding the night-flowering species, but that this would logically entail still further segregation, which would be inconvenient. He accordingly accepted the genus in a wide sense, but wrote its name *Mesembryanthemum* with a "y" in order to give it a different meaning and derivation from Breyne's *Mesembrianthemum* ("Quapropter ego quidem in uno *Mesembryanthemi* genere acquiesco, scribendo id per y, ut alius sensus et derivatio emergat. Flos nempe cui embryo est in medio").

*Mesembryanthemum* Dill. was thus not a new spelling of *Mesembrianthemum* Breyne, but a new name, with practically the same sound, it is true, and differing only in a single letter, but with an entirely different meaning.

Linné (Hort. Cliff. 221) adopted the name *Mesembryanthemum* from Dillenius, to the excellence of whose work he paid a high tribute. He regretted that it was unduly long, but justified its retention on the ground that no better synonyms were in existence (" *Ficoides* nomen absolute falsum et ; *Mesembryanthemi* a tribus verbis graecis confectum et fere sesquipedale retineo cum Dillenio, cum quodammodo excusari queat, cumque synonyma meliora non prostent "). It is obvious that he had read the historical account of *Mesembryanthemum* given by Dillenius, and as he mentioned that the genus was unknown before the time of Hermann and Breyne he undoubtedly knew and rejected the name *Mesembrianthemum* Breyne. He consistently spelt the name of the genus with a "y" in the various editions of his *Systema Vegetabilium*, *Genera Plantarum*, and *Species Plantarum*, and, following Dillenius, derived it from μέσος and ἔμβρυον (Phil. Bot. 177).

Some botanists have considered that as the earliest spelling of the name was *Mesembrianthemum* (Breyne, 1689), this spelling should be retained under Art. 57 of the International Rules of Nomenclature: "The original spelling of a name must be retained, except in case of a typographic or orthographic error." Two arguments against this view may be brought forward.

(1) *Mesembryanthemum* Dill. was not a new spelling of *Mesembrianthemum* Breyne, but an entirely new name, and there is therefore no ground for altering it, since it was adopted by Linné in 1753 in preference to *Mesembrianthemum* Breyne.

(2) The words "original spelling" in Art. 57, taken in conjunction with Art. 19, under which the botanical nomenclature of Phanerogamae begins in 1753 (Linné, *Species Plantarum*, ed. 1), evidently mean the spelling when the name was first effectively published, that is, in 1753 or afterwards. Forms of spelling in vogue before 1753 are of significance only in so far as they may suggest that there was a typographic or orthographic error in the "original spelling." Two cases may be cited in support of this interpretation.

Briquet (Burnat, Fl. Alp. Marit. vi. 261: 1917) adopted the spelling *Elichrysium* Mill. (1754) in preference to *Helichrysium* Pers. (1807) on the ground that the former was the original spelling. He mentioned that both forms were etymologically admissible and were actually used in pre-Linnean works, so that there was no typographic or orthographic error in Miller's spelling.

Similarly Fawcett and Rendle (Fl. Jam. iii. 194) adopted the name *Annona* L., in preference to the historically earlier but pre-Linnean name *Anona*. The case is almost parallel to that of *Mesembryanthemum*. The original pre-Linnean spelling of the name was *Anona* from the vernacular name "anon" or "hanon" applied to one of the species, but Linné deliberately altered it to *Annona*, the addition of a single letter changing its meaning to "a year's produce."



It seems clear, therefore, that under International Rules, Art. 19 and 57, the correct spelling of the three generic names in question is *Mesembryanthemum* (not *Mesembrianthemum*), *Elichrysum* (not *Helichrysum*), and *Annona* (not *Anona*). Letters endorsing this conclusion have been received from Dr. John Briquet of Geneva, and Dr. Hans Schinz of Zürich.

## XX.—THE GENUS *DICHAPETALUM* IN EAST, SOUTH TROPICAL, AND SUBTROPICAL AFRICA.

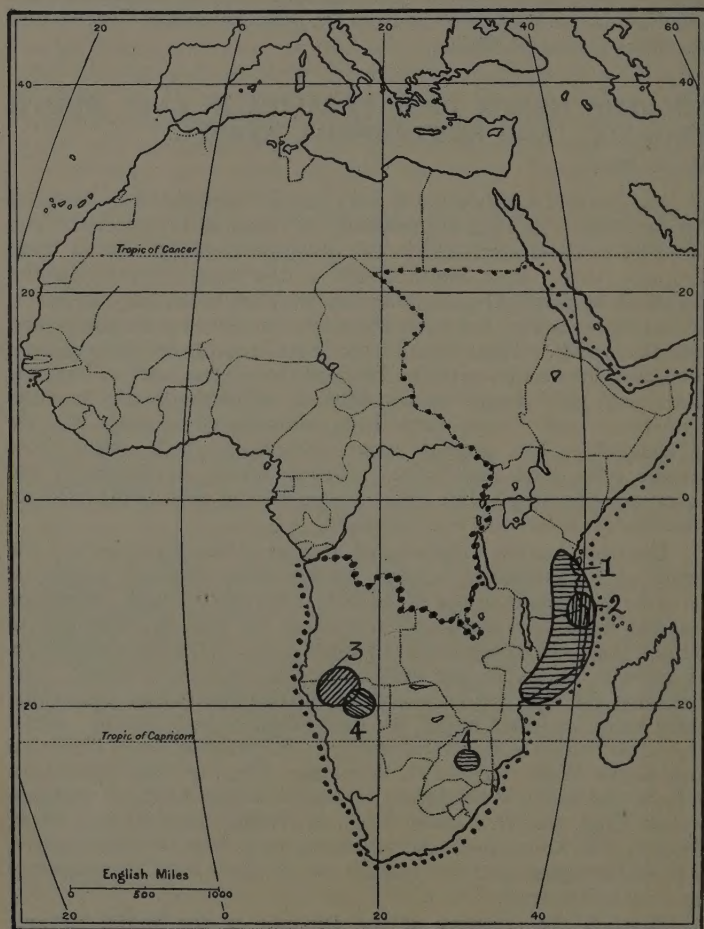
M. B. Moss.

The genus *Dichapetalum* is very richly represented in Tropical Africa, Engler<sup>1</sup> in 1912 enumerating as many as 117 species. The majority of these are found in the dense primæval forests of West Tropical Africa, from Sierra Leone to the Congo River. In the savannah or plateau region, however, they are much less numerous, and except in a very few cases the species in this area do not extend into the forests. Those from Upper West Tropical Africa have been revised in connection with the Flora of that region, and will appear in the next part<sup>2</sup> shortly to be published, whilst the species from the Cameroons and Congo have been enumerated recently by De Wildeman<sup>3</sup>. The present paper, therefore, deals with those species from East and South Tropical Africa, as shown in the accompanying map; but for convenience the only South African representative has also been included.

The work has been undertaken because of the importance of the genus to agriculturists, several species being reputed poisonous. In order to make it useful in the field, the more obvious vegetative features have been employed in framing the key, in preference to minute floral characters requiring observation under the microscope. In general the species are very limited in their distribution. The following are recorded as poisonous, further particulars concerning them being included under the description of each species, whilst their distribution is shown in the map:—*D. cymosum* Engl. (Transvaal and South West Africa), *D. venenatum* Engl. et Gilg. (Southern Angola and South West Africa), *D. macrocarpum* Engl., *D. mossambicense* Engl. and *D. Braunii* Engl. et Krause (East African Coast Region). In contrast to the poisonous properties of these species, it should be mentioned that at least one, *D. edule* Engl., is reputed to have an edible fruit.

Through the courtesy of the Director of the Berlin Botanic Gardens I have been able to examine certain types which were not represented at Kew or at the herbarium of the British Museum (Natural History). I am also indebted to Mr. J. Hutchinson for assistance.

<sup>1</sup>Engl. Bot. Jahrb. 46: 562 (1912). <sup>2</sup>Hutchinson & Dalziel, Flora of West Tropical Africa, Vol. I, Part ii, ined. <sup>3</sup>Rev. Zool. Afr. Vol. 6, Suppl. Bot. (1919).



Map showing range of poisonous species of *Dichapetalum*; the area within the dotted line is the region dealt with in the present paper. 1, range of *D. mossambicense* Engl. 2, of *D. macrocarpum* Engl. and *D. Braunii* Engl. et Krause. 3, *D. venenatum* Engl. et Gilg. 4, *D. cymosum* Engl.

## Key to the species.

Leaves thickly felted or woolly beneath at maturity :

Stipules pinnatipartite ; leaves cordate or subcordate at the base :

Peduncle adnate to the petiole ; branchlets with short crisped tomentum ; leaves obovate-oblong, tapering to a subcordate base ; venation not conspicuous below.....1. *angolense*.

Peduncle free from the petiole ; branchlets loosely villous ; leaves oblong-elliptic, distinctly cordate at the base ; venation very outstanding below :

Tomentum on under side of leaves short and woolly intermixed with a few long hairs.....2. *aureonitens*.

Tomentum on under side of leaves consisting of long hairs only with no woolly covering.....3. *mossambicense*.

Stipules entire ; leaves cuneate or only slightly cordate at the base :

Stipules very prominent, up to 1.5 cm. long, about 3 mm. broad at the base and tapering above ; inflorescence shortly pedunculate or subsessile :

Leaves sharply acuminate and mucronate at the apex, rounded at the base ; flowers nearly 1 cm. long.....4. *macrocarpum*.

Leaves at most obtusely pointed and mucronate at the apex, not apiculate, cordate at the base ; stipules smaller than in *D. macrocarpum* ; flowers only about 4 mm. long.....5. *edule*.

Stipules small and caducous ; inflorescence pedunculate ; petals much smaller than above :

Leaves cuneate at the base :

Leaves gradually long-cuneate at the base, long-petiolate ; stipules caducous.....6. *Stuhlmannii*.

Leaves shortly cuneate at the base ; petiole up to 7 mm. long ; stipules subpersistent.....7. *hypoleucum*.

Leaves rounded at the base, subsessile ; stipules not caducous... 8. *rhodesicum*.

Leaves glabrous or only slightly hairy at maturity :

Inflorescence shortly pedunculate or subsessile :

Peduncle adnate to petiole :

Pedicels short and stout ; flowers about 7 mm. long..... 9. *mombuttense*.

Pedicels very slender ; flowers 2 mm. long.....10. *Dummeri*.

Peduncle free from petiole :

Inflorescence compact and globose ; leaves rounded at the base ; indumentum on young stems fairly long...11. *Schweinfurthii*.

Inflorescence more loosely arranged than above ; leaves cuneate at the base :

Petals entire ; stems and under surface of the leaves glabrous ; leaves broadly elliptic, coriaceous.....12. *crassifolium*.

Petals bifid ; stems and leaves not glabrous ; leaves obovate-oblong, membranous :

Indumentum on under surface of leaves very slight, upper surface glabrous ; leaves cuneate at the base ; stems shortly hairy :



- Pedicels very short ; flowers in a cymule.....13. *Gossweileri*.  
 Pedicels 1 cm. long ; flowers laxly fasciculate...14. *ugandense*.  
 Indumentum on leaves fairly long ; leaves rounded at the  
 base ; stems pilose.....15. *subsessilifolium*.  
 Inflorescence distinctly pedunculate :  
 Leaves subsessile, about 4 times as long as broad, venation very  
 prominent ; stems short and subsimple from a woody rhizome :  
 Stems and peduncles glabrous or nearly so.....16. *venenatum*.  
 Stems and peduncles softly tomentose.....17. *cymosum*.  
 Leaves petiolate, about twice as long as broad ; cymes and  
 flowers shorter than above :  
 Leaves usually cuneate at the base ; petiole about 1 cm. long :  
 Leaves obovate, broadly rounded at the apex, with a short  
 mucro.....18. *Ruhlandii*.  
 Leaves elliptic, more or less distinctly acuminate :  
 Petals entire ; leaves scarcely or shortly acuminate :  
 Inflorescence both subsessile and pedunculate, up to 2.5 cm.  
 long ; flowers about 2.5 cm. long ; leaves broadly elliptic  
 12. *crassifolium*.  
 Inflorescence only pedunculate, about 2 cm. long ; flowers  
 about 6 mm. long, and not so densely arranged in *D.*  
*crassifolium* ; leaves not so broad ; and venation much  
 more markedly reticulate than preceding.....19. *Braunii*.  
 Petals bifid ; leaves usually distinctly acuminate ; inflores-  
 cence only pedunculate :  
 Inflorescence lax..... 20. *fructuosum*.  
 Inflorescence more dense :  
 Leaves rather broadly elliptic, cuneate to rounded at the  
 base, venation conspicuous on both surfaces ; flowers  
 4-5 mm. long ; style exserted and shortly lobed.....  
 21. *deflexum*.  
 Leaves narrowly elliptic, cuneate at the base, venation  
 hardly visible above ; flowers distinctly smaller than  
 preceding :  
 Style very short and lobed almost to the base ; peduncle  
 and pedicels somewhat thick ; lateral nerves about  
 6 pairs.....22. *Eickii*.  
 Style as long as the stamens, unequally and shortly  
 bilobed ; peduncle and pedicels more slender than  
 in preceding ; lateral nerves about 8 pairs.....  
 23. *Wildemanianum*.  
 Leaves rounded at the base ; petiole only about 2 mm. long :  
 Inflorescence many-flowered ; peduncle up to 2 cm. long ;  
 petals entire.....24. *umbellatum*.  
 Inflorescence few-flowered ; peduncle rarely exceeding 1 cm.  
 long ; petals bifid :  
 Leaves at maturity glabrous above and almost so below,  
 gradually acuminate ; stipules very small ; ovary pubescent  
 25. *retroversum*.

Leaves at maturity hairy on both surfaces especially on the nerves and margin, scarcely acuminate ; stipules larger than preceding ; ovary with long woolly hairs.....21. *deflexum*.

1. **D. angolense** Chod. in Bull. Herb. Boiss. 3 : 672 (1895). *D. ferrugineo-tomentosum* Engl. Bot. Jahrb. 23 : 139 (1896).

A robust subscandent *shrub* ; branchlets with crisped brown indumentum ; internodes 5 cm. or more long. *Leaves* obovate to oblong, subtriangular-acute at the apex, rounded and asymmetric at the base, 10-17 cm. long, 4-7 cm. broad, sparsely hairy and becoming glabrous above except on the principal nerves, more densely hairy to almost velvety below ; lateral nerves about 8 pairs, immersed above, very prominent below, reticulations of tertiary nerves conspicuous ; petiole 1 cm. or more long, tomentose, caducous. *Cymes* much-branched, reaching half the length of the leaf when in fruit ; peduncle adnate to the petiole to within 5 mm. of the blade, tomentose ; bracts conspicuous, linear, up to 5 mm. long, tomentose. *Sepals* tomentose, about 2 mm. long. *Petals* bifid. *Fruit* slightly obovoid to almost globose, about 1.5 cm. diam., covered with brown indumentum intermixed with longer hairs.

ANGOLA. Golungo Alto : in primæval forests near Cacula and Cambondo, June, *Welwitsch* 4663 ! 4664 !

Extends to Cameroons Mt. and recorded from the Ivory Coast.

2. **D. aureonitens** Engl. Bot. Jahrb. 46 : 573 (1912). *D. mossambicense* Engl. Pflanzenw. Ost-Afr. C : 235, partly. *Chailletia mossambicensis* Oliv. Fl. Trop. Afr. i : 342, partly, not of Klotzsch.

*Branchlets* loosely villous with rusty brown hairs intermixed with a shorter indumentum. *Leaves* oblong to slightly obovate, tapering to a fine point at the apex, cordate at the base, 7-10 cm. long, 2.5-5 cm. broad, sparsely and adpressed-hairy on both surfaces, hairs more dense on the midrib, intermixed with a short woolly coating below ; lateral nerves about 7 pairs, impressed above ; petiole extremely short or absent ; stipules pinnatipartite, about 1 cm. long, brown-villous. *Cymes* axillary, pedunculate, loosely branching, 4 cm. or more long, villous ; bracts linear, 0.5 cm. long, villous ; pedicels shortly hairy. *Sepals* oblong, 2 mm. long, white-woolly outside, glabrous and dark coloured inside. *Petals* about the same length as the sepals, obovate, bifid. *Stamens* twice the length of the petals. *Ovary* dense- and long-white-woolly ; style shorter than the stamens, stigmatic lobes short.

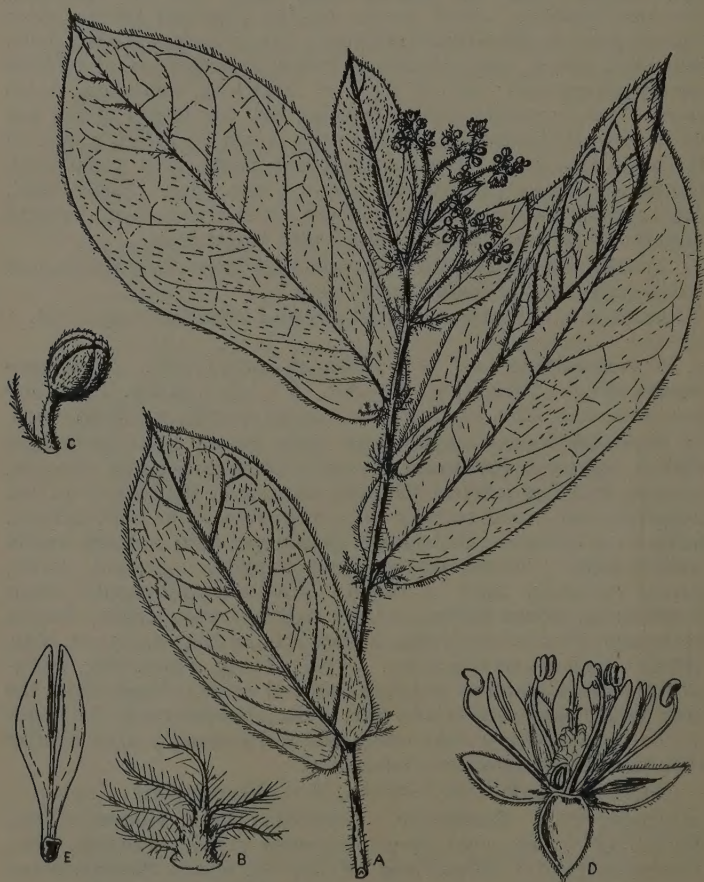
KENYA COLONY. Mt. Schimba, Mar., *Kassner* 180 !

TANGANYIKA TERRITORY. Usambara ; near Misosue, Feb., *Holst* 2218 ! Bagamoyo, May, *Stuhlmann* 7176 ! Usaramo, Feb., *Stuhlmann* 7150 ! Kilwa, Aug., *Kirk* ! N. Muera Plateau, *Busse* 2878. Rovuma River, 30 miles from the coast, Mar., *Kirk* !

PORTUGUESE EAST AFRICA. Hills at mouth of Msalu River, Oct., *Allen* 52 ! Jan., *Allen* 146 ! Mtamba, Nov., *Stocks* 64 !

3. **D. mossambicense** Engl. Pflanzenw. Ost-Afr. C: 235, partly (1895). *Chailletia mossambicensis* Klotzsch in Peters Mossamb. Bot. 108, t. 19; Oliv. Fl. Trop. Afr. i: 342, partly.

*Branchlets* loosely villous with long brown hairs intermixed with few short hairs. *Leaves* oblong-elliptic to slightly obovate, acute and long-mucronate at the apex, cordate at the base, 8-15 cm. long, 4-6.5 cm. broad, thinly pilose above, more densely pilose below; lateral nerves about 7 pairs, impressed above, distinct below; petiole about 4 cm. long, villous; stipules pinnatipartite, about



*Dichapetalum mossambicense* Engl. A, flowering shoot. B, stipule. C, flower-bud. D, open flower. E, petal. (Except B adapted from Peters Mossamb. Bot. t. 19.)



1 cm. long, pilose, segments filiform. *Cymes* up to half as long as the leaves, pedunculate, villous; pedicels 5 mm. long, woolly-pubescent. *Sepals* ovate, 2 mm. long, woolly-tomentose, reflexed in flower. *Petals* obovate, 4 mm. long, 2-lobed for about half their length, clawed at the base, distinctly veined. *Stamens* slightly longer than the petals. *Ovary* covered with very long woolly hairs; style about 2 mm. long, glabrous, stigma shortly lobed.

TANGANYIKA TERRITORY. "Zanzibar Coast," Kirk! Dar-es-Salaam, *Stuhlmann* 7468!

PORTUGUESE EAST AFRICA. Sena, *Peters* (type)!

The vernacular names are "Chikwaya," "Chickwaya dume," "Mkwaya," "Nehenchure." According to Engler (*Bot. Jahrb.* 46: 572) the fruit is a deadly poison and goats die of it. As *D. mossambicense* Engl. has been confused with *D. aureonitens* Engl., this remark may apply to the latter species.

#### 4. *D. macrocarpum* Engl. *Bot. Jahrb.* 46: 565 (1912).

*Branchlets* tomentose with spreading hairs; lateral branchlets numerous; internodes about 4 cm. long. *Leaves* elliptic to oblanceolate, sharply acuminate and mucronate at the apex, rounded at the base, often slightly unequal-sided, 6-14 cm. long, 2.5-5.5 cm. broad, glabrous above except for long hairs on the principal nerves, pilose below especially on the nerves and veins; lateral nerves about 6 pairs, looped near the margin; petiole up to 5 mm. long, pilose; stipules entire, lanceolate, 1.5 cm. long, clothed with adpressed hairs especially on the outside, striate. *Cymes* subsessile, few-flowered; bracts and bracteoles conspicuous; bracts up to 5 mm. long, hairy; pedicels about 2 mm. long, pilose. *Sepals* free almost to the base, 5 mm. long, hairy especially towards the base outside, glabrous within. *Petals* obovate, with clawed base, bifid for about  $\frac{1}{4}$  their length, rounded at the apex, nearly 1 cm. long and 4 mm. broad, midrib marked. *Ovary* and lower part of the style with very long woolly hairs, stigma shortly lobed. *Fruit* 2-3-lobed, lobes rounded and often inconspicuous, about 2.5 cm. long, densely covered with long stiff hairs.

TANGANYIKA TERRITORY. Lindi district, in light dry *Brachystegia* forest, fr. June, *Busse* 2879 (type)!

PORTUGUESE EAST AFRICA. Msalu River, Jan., *Allen* 148! Mar., *Allen* 149!

The vernacular name is "Chibwaya jika." According to Engler (l.c.) the fruit is a deadly posion.

#### 5 *D. edule* Engl. *Bot. Jahrb.* 46: 571 (1912).

*Branchlets* tomentose when young with dense rusty-brown hairs. *Leaves* elliptic, obtusely pointed and mucronate at the apex, rounded to subcordate at the base, 7-12 cm. long, 3-5 cm. broad, tomentose on both surfaces when young, more densely so below, becoming almost glabrous and glaucous above; lateral nerves 6 pairs, widely

ascending ; petiole not more than 4 mm. long, tomentose ; stipules linear, up to 1 cm. long or more, tomentose. *Cymes* very shortly pedunculate or subsessile, tomentose. *Flowers* about 4 mm. long. *Sepals* tomentose outside, puberulous to almost glabrous inside. *Petals* obovate, clawed at the base, shortly bifid. *Ovary* and base of the style tomentose.

TANGANYIKA TERRITORY. Noto Plateau, in thick bush, fl. and fr. June, *Busse* 2928 (type) !

The vernacular name is "Mtosh." According to Engler (l.c.) the pericarp of the ripe fruit is eaten.

6. **D. Stuhlmannii** Engl. Pflanzenw. Ost-Afr. C : 235 (1895).

*Branchlets* pubescent with crisped yellow indumentum. *Leaves* obovate, obtuse at the apex, cuneate at the base, 7.5-8.5 cm. long, 2.5-4 cm. broad, pale on both surfaces with thin matted hairs above, more dense below ; lateral nerves about 4 pairs, midrib impressed above, veins prominent on both surfaces ; petiole 1 cm. long or more, pubescent, especially on the upper side ; stipules narrowly lanceolate, up to 0.5 cm. long, tomentose. *Cymes* about 2.5 cm. diam. ; peduncle up to 1 cm. long, tomentose like the pedicels, bracts and both surfaces of the sepals. *Flower* 0.5 cm. long. *Petals* obovate, apex bifid for less than 1 mm. *Filaments* of stamens flattened dorsi-ventrally, tapering above. *Ovary* tomentose ; stigma shortly 2-3-fid.

TANGANYIKA TERRITORY. Usaramo, *Stuhlmann* 7145 ! 7146 !

7. **D. hypoleucum** Hiern in Welw. Cat. i : 138 (1896).

*Branchlets* very shortly pubescent. *Leaves* elliptic or slightly obovate, long-acuminate, shortly cuneate at the base, about 15 cm. long and 6 cm. broad, dark green above and paler below with a close felt of woolly hairs ; lateral nerves about 5 pairs, tertiary nerves lax and subparallel ; petiole about 8 mm. long ; stipules lanceolate, about 4.5 mm. long, persistent, glabrescent. *Inflorescence* very shortly pedunculate, subglomerate. *Pedicels* up to 5 mm. long. *Sepals* ovate, tomentose on the outside, about 3 mm. long. *Petals* bifid. *Fruits* globose, setose-tomentose.

ANGOLA. Without locality, *Welwitsch* 4667 !

Also in French Cameroons.

8. **D. rhodesicum** *Sprague et Hutchinson* in Kew Bull. 1908 : 433. *D. ellipticum* R.E. Fries Schwed. Rhod.-Kongo-Exped. i : 114, t. 12, fig. 10-12 (1914) (ex descriptione et icon.).

*Branchlets* densely tomentose with short brown hairs. *Leaves* oblong-elliptic, acutely acuminate, rounded at the base, 8-10 cm. long, 3-4.5 cm. broad, tomentose above, more densely so and paler below ; lateral nerves about 4 pairs, slightly impressed below, marked on both surfaces by brown hairs like the leaf-margin ; petiole up to 5 mm. long, brown-tomentose ; stipules entire, linear, 6-7 mm.

long, tomentose. *Cymes* about 3 cm. long ; peduncle brown-tomentose ; pedicels about 2 mm. long, tomentose. *Sepals* ovate, 2 mm. long, pubescent outside, glabrous and dark coloured within. *Petals* about the same size as the sepals, pubescent outside, shortly clawed at the base and bifid at the apex. *Stamens* reaching to the top of the corolla, filaments thick, glabrous. *Ovary* densely villous ; style reaching to the top of the petals, glabrous, stigma shortly bilobed.

RHODESIA. Gwaai forest, Jan., *Allen* 234 (type) ! Sesheke District, *Macaulay* 86 ! North of Kasomo, climbing on trees, Sept., *Fries* 727. Kawendimusi, fr. Sept., *Fries* 727a.

From description *Fries*' *D. ellipticum* seems to be indistinguishable from this species. It is doubtful whether the climbing habit is of sufficient importance as a specific character, the habit being due perhaps to environment.

9. ***D. mombuttense*** *Engl. Bot. Jahrb.* 23 : 135 (1896).

A shrub, 2 m. high ; branchlets very thinly and shortly hairy, becoming glabrous. *Leaves* elliptic, obtuse at the apex, very shortly cuneate at the base, 10–11 cm. long, about 5 cm. broad, glabrous, except for a few hairs on the midrib above, shining ; lateral nerves about 4 pairs, looped about 6 mm. from the margin, venation not very prominent on either surface ; petiole 1–1.3 cm. long, as thick as the branchlets ; stipules triangular, 1 mm. long, shortly hairy, obliquely inserted. *Cymes* loose-flowered, peduncle more densely hairy than the petiole and adnate to it to within 3 mm. of the blade ; pedicels 3 mm. long, articulated and breaking off just below the flower ; bracts minute. *Sepals* elliptic, 6 mm. long, thick, tomentellous outside. *Petals* narrowly obovate, bifid with rounded lobes, exceeding the sepals by 1 mm., puberulous outside, glabrous inside with a narrow wing down the centre for about half the length. *Stamens* 5, as long as the petals, filaments flattened dorsio-ventrally and 1 mm. broad at their base. *Ovary* pubescent ; style scarcely exceeding the stamens in length and with a few ascending hairs, stigma shortly trifid with recurved lobes.

EASTERN SUDAN. Mombuttu Country ; Munza, Mar., *Schweinfurth* 3454 (type) !

Also in Portuguese Congo (*Gossweiler* 6282).

10. ***Dichapetalum Dummeri*** *M. B. Moss*, sp. nov., foliis obovato-ellipticis, pedunculo petiolo adnato, floribus minimis fasciculatis distincta.

Small tree 10 m. high ; branchlets flexuose, lenticellate. *Leaves* obovate-elliptic, obtusely acuminate, subacute at the base, 4–7 cm. long, 2.5–4 cm. broad, pubescent on the nerves below ; petiole very slender, about 7 mm. long. *Flowers* fasciculate, 2–3 mm. long ; peduncle adnate to the petiole its full length. *Sepals* small, united into a campanulate tube. *Petals* lobed for half their length, rather thick. *Ovary* globose, glabrous ; style slender, stigma bifid.

UGANDA. Mahira, forest edge at Mulange, 1300 m., flowers white, fragrant, Sept., *Dummer* 4469 (type) ! Jan., *Dummer* 3974 !



11. **D. Schweinfurthii** Engl. Bot. Jahrb. 23 : 140 (1896).

*Branchlets* loosely villous with spreading ferruginous hairs mixed with short stiff indumentum. *Leaves* obovate to oblong, abruptly and sharply acuminate, rounded at the base, frequently asymmetric, 10–16 cm. long, 3–6 cm. broad, shining above, glabrous except on the principal nerves with a few adpressed hairs especially on the nerves below ; lateral nerves about 6 pairs, ascending at a wide angle and looped well within the margin, impressed above, distinct below ; petiole up to 4 mm. long, pilose like the stem and midrib ; stipules linear-subulate, about 6 mm. long, pilose. *Cymes* forming dense subsessile globose clusters about 1.5 cm. diam. *Sepals* ovate, 3.5 mm. long, connate for  $\frac{1}{3}$  their length, pubescent outside and glabrous within. *Petals* exceeding the sepals, narrowly obovate, bifid for nearly half their length. *Stamens* the same length as the petals, filaments flattened. *Ovary* pubescent ; style exerted for about 2 mm., stigma 2–3-fid. *Fruit* globose, about 1.3 cm. diam., covered with brown velvety tomentum, irregularly ridged.

EASTERN SUDAN. Niamniam Country ; on the Mbrwole, Mar., *Schweinfurth* 3152 ! Mombuttu ; Munza, Mar., *Schweinfurth* 3465 ! On the Kussumbo, Apr., *Schweinfurth* 3637 ! Lado ; Yei River, fr. Oct., *Sillitoe* 386 !

12. **D. crassifolium** Chod. in Bull. Herb. Boiss. 3 : 672 (1895).

A robust scandent *shrub* with spreading branches ; branchlets glabrous, with numerous small lenticels. *Leaves* broadly elliptic, shortly and bluntly acuminate, very shortly cuneate at the base, 11–15 cm. long, 5–8 cm. broad, glabrous, coriaceous ; lateral nerves about 4 pairs looped well within the margin ; petiole thick, up to 1 cm. long ; stipules caducous. *Inflorescence* a dense many-flowered axillary cyme, both sessile and pedunculate, up to 2.5 cm. long ; pedicels about 2.5 mm. long. *Sepals* lanceolate, concave, as long as the pedicels, tomentellous on the outside. *Petals* not exceeding the sepals, obovate, entire at the apex. *Stamens* about 1.5 mm. long ; anthers equalling the filaments in length. *Ovary* pubescent ; style short, stigma shortly lobed. *Fruit* laterally flattened, orbicular-rhomboid, 2.5 cm. diam., beaked by the excentric style, softly tomentose, the calyx and corolla persistent in fruit.

ANGOLA. Cazengo : in primæval forest of Cabondo, fl. and fr. in June, *Welwitsch* 4665 ! Pungo Andongo : in shady places among rocks by thickets, young fr. in Nov., *Welwitsch* 4666 !

13. **D. Gossweileri** Engl. Bot. Jahrb. 46 : 586 (1912).

*Branchlets* slender, striate, puberulous with prominent white lenticels, ultimate branchlets forming an angle of 90°. *Leaves* oblong to slightly obovate, acuminate at the apex, shortly cuneate at the base, 10–12 cm. long, about 5 cm. broad, glabrous above and below except for a slight hairiness on the principal nerves ; lateral veins 4 or 5 pairs, very prominent on the lower surface, looped well within the margin ; petiole 0.5–0.9 cm. long, puberulous ; stipules

caducous. *Cymes* small, densely flowered and shortly pedunculate, puberulous; pedicels jointed just below the flower. *Calyx* campanulate, 3 mm. long, divided to the middle, glabrous within. *Petals* twice as long as the sepals, 2-lobed for over half their length. *Stamens* twice as long as the petals. *Ovary* densely pilose; style pilose at the base, stigmatic lobes spreading. *Fruit* obovoid, with a lateral style, velvety-puberulous, about 1.5 cm. long.

ANGOLA. Cazengo, *Gossweiler* 585 !

14. ***Dichapetalum ugandense*** *M. B. Moss*, sp. nov., affinis *D. Gossweileri* Engl., sed floribus fasciculatis, pedicellis longioribus differt.

A tree, 30 ft. high; branches pubescent, marked with rather large lenticels, lateral branchlets spreading at an angle of 90°. *Leaves* elliptic to slightly obovate-elliptic, shortly acuminate at the apex, cuneate at the base, 7–8 cm. long, 3–3.5 cm. broad, tomentose on the nerves on the lower surface; lateral nerves about 6 pairs; petiole about 5 mm. long, tomentose; stipules entire, linear, 2 mm. long, tomentose. *Flowers* white, few, in axillary fascicles; pedicels 1 cm. long, tomentose; bracts very small, situated about half-way up. *Sepals* 3 mm. long, grey-tomentose on the outside, glabrous and dark coloured within. *Petals* slightly exceeding the sepals, bifid for about half their length. *Ovary* tomentose; style 5 mm. long, stigma very shortly lobed.

UGANDA. Mukoro, forest, 1300 m., Oct., *Dummer* 292 ! (type), May, *Dummer* 2445 !

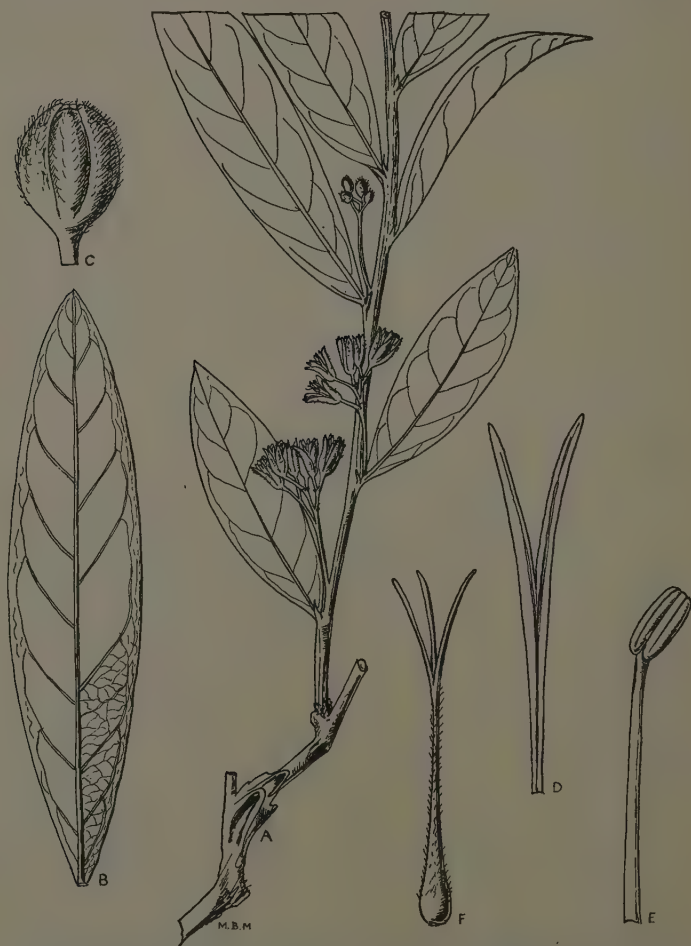
15. ***D. subsessilifolium*** *Chod.* in Bull. Herb. Boiss. 3 : 671 (1895).

A widely climbing slender evergreen shrub; branchlets villous with spreading ferruginous hairs intermixed with short white tomentum. *Leaves* obovate-elliptic, shortly acuminate and mucronate at the apex, rounded and markedly asymmetric at the base, about 12 cm. long, 5–6 cm. broad, papery-coriaceous, hairs on the midrib above, on all the nerves below; lateral nerves about 6 pairs, prominent on the lower surface; petiole barely 3 mm. long, villous; stipules subulate, 6 mm. long, villous. *Inflorescences* forming sessile axillary clusters; bracts lanceolate, villous, up to 2 mm. long; pedicel about 1 mm. long, pilose. *Sepals* oblong, connate into a cup below, 2 mm. long, pubescent on the outside with a tuft of longer hairs at the apex. *Petals* narrowly lanceolate, about 4 mm. long, 2-lobed at the apex for nearly 2 mm. *Stamens* as long as the petals, filaments broad at the base and tapering to the small rounded anthers. *Ovary* rounded and pilose above; style glabrous, as long as the stamens, stigmatic lobes spreading.

ANGOLA. Golungo Alto: in primæval forest of Serra de Alto Queta, May, *Welwitsch* 469 !; in very dense woods of Sobato de Quilombo-Quiacatubia, *Welwitsch* 3018 ! 3019 ! 4662 ! 4697 ! 6718 !

16. **D. venenatum** Engl. et Gilg. in Warb. Kunene-Sambesi Exped. 280 (1903).

*Stems* simple from a creeping woody rhizome, glabrous, striate. *Leaves* sessile, narrowly oblong to oblanceolate, rounded and minutely mucronate at the apex, narrowed at the base, 6.5 to about 10 cm. long, 2.5 cm. broad, papery when young, glabrous on both surfaces, paler green below; lateral nerves about 6 pairs, tertiary nerves markedly reticulate and outstanding below; stipules linear,



*Dichapetalum venenatum* Engl. et Gilg. A, flowering shoot. B, leaf (enlarged). C, flower-bud. D, petal. E, stamen. F, pistil.



2 mm. long, pilose. *Cymes* about 8-flowered, up to 4 cm. long; peduncles glabrous or sparsely hairy, partially adnate to the stem for about 5 mm. above the axil; pedicels 6 mm. long; bracts similar to the stipules but shorter. *Sepals* 7 mm. long, narrow, free almost to the base, tomentose at the apex becoming glabrous towards the base. *Petals* as long as the sepals, narrow, bifid for  $\frac{2}{3}$  their length, prominently 3-nerved at the base, glabrous. *Stamens* reaching to the top of the petals; filaments flattened with membranous edges. *Style* about 6 mm. long, unequally bilobed for about 2 mm., villous in the lower part and on top of the ovary.

ANGOLA. Between Ediva and Humbe, 1200 m. alt., in sandy places, Sept., *Baum* 64 (type)!

SOUTH WEST AFRICA. Owamboland; near Gaub, fr. July, *Schmidt*!

The vernacular name is "Machau." According to *Baum* (l.c.) this species is a deadly poison, a few fresh leaves being fatal to cattle. The fruit is also poisonous although some kaffirs are able to eat the exocarp without ill effects.

17. **D. cymosum** *Engl.* in *Engl. & Prantl, Pflanzenf.* 3: 4, 349 (1890). *Chailletia cymosa* *Hook. Ic. Pl. t.* 591 (1843).

*Stems* subsimple, up to 12 cm. high, from a woody rhizome, softly tomentose especially at the base. *Leaves* subsessile, oblong-oblancheolate, rounded and slightly mucronate at the apex, obtuse or subacute at the base, 6-12 cm. long, 2-3.5 cm. broad, closely reticulate on both surfaces, glabrous; lateral nerves about 6 pairs, prominent on both surfaces; stipules linear-subulate, 4-5 mm. long, pubescent. *Cymes* towards the base of the stem, softly tomentose. *Sepals* oblong-oblancheolate, 6-7 mm. long, pubescent. *Petals* divided  $\frac{1}{2}$  their length, glabrous. *Style* divided to below the middle, hairy in the lower part and on the ovary.

TRANSVAAL. Aapies River, Oct., *Burke*! *Zeyher* 536! *Rehmann* 4338. Meintjes Kop, Oct., *Pole Evans*! Premier Mine, Sept., *Rogers* 14781! Near Pretoria, Sept., *Bolus* 7696! Near Rustenburg, Mar., *Brock in Herb. Macowan* 1418. Between Silverton and Hatherly, Oct., *Phillips* 3039.

SOUTH WEST AFRICA. Between Grootfontein and the Okavango River, Sept.-Oct., *Schmidt* 5906! 5907!

Poisonous to stock and known in South Africa as the Gift-blaad or Gift-blaar (see *Burt Davy* in *Kew. Bull.* 1925, p. 37, and *Phillips* in *Bot. Surv. S. Afr.* 9: 14, pl. 8 (1926)).

18. **D. Ruhlandii** *Engl. Bot. Jahrb.* 34: 152 (1904).

Small tree up to 5 m. high; branchlets shortly tomentose when young, becoming glabrous. *Leaves* obovate-elliptic, broadly rounded to slightly emarginate at the apex, sometimes with a short mucro, very shortly and abruptly cuneate at the base, about 10 cm. long and 6 cm. broad, glabrous on both surfaces, shining; lateral nerves 4-5

pairs, impressed above, prominent below, tertiary nerves distinctly reticulate; petiole about 1 cm. long; stipules caducous. *Cymes* pedunculate, about 3 cm. long, densely flowered, velvety tomentose; peduncle 1.5 cm. long or more. *Sepals* oblong, 2-3 mm. long, tomentellous on the outside. *Petals* about the same length, shortly bifid. *Stamens* slightly exceeding the petals in length. *Ovary* puberulous; style about 4 mm. long.

TANGANYIKA TERRITORY. East Usambara: in dry forest in upper Lungusa, Sept., Engler 419 (type)!

19. **D. Braunii** Engl. et Krause in Engl. Bot. Jahrb. 51: 451 (1914).

*Shrub*; branchlets sparsely pubescent, striate. *Leaves* oblanceolate to elliptic, gradually and shortly acuminate, very shortly cuneate to almost rounded at the base, 6-10 cm. long, 3-4 cm. broad, glabrous on both surfaces except for a few hairs on the nerves; lateral nerves 5-6 pairs, midrib impressed above, very conspicuously reticulate especially on the lower surface; petiole up to 5 mm. long; stipules entire, linear, about 3 mm. long, tomentose, caducous. *Cymes* shortly pedunculate, up to 2 cm. long; peduncle and pedicels sparsely and very shortly hairy; bracts like the stipules but smaller. *Sepals* oblong, 6 mm. long, connate for about  $\frac{1}{2}$  their length, puberulous. *Petals* 6 mm. long, narrow, entire. *Stamens* about the same length as the petals, anthers small and globose. *Ovary* puberulous, style slightly exceeding the petals, stigma shortly 2-3-fid.

TANGANYIKA TERRITORY. Lindi district; Mtua, June, Braun 606!

The vernacular name is "Nchenchere" (Braun). According to Engler & Krause (l.c.) this species is very poisonous.

20. **D. fructuosum** Hiern in Welw. Cat. 1: 138 (1896).

A scandent *shrub*; branchlets glabrescent, the younger stems puberulous. *Leaves* elliptic, acuminate with obtuse apex, cuneate at the base, 5-10 cm. long, 2-5 cm. broad, coriaceous, glossy and subglaucescent on both surfaces; petiole about 5 mm. long; stipules subulate, deciduous. *Inflorescence* lax, axillary and subterminal. *Peduncle* about 2.5 cm. long. *Fruit* oval, somewhat compressed, about 1.5 cm. long, shortly and closely hairy.

ANGOLA. Cazengo: in virgin forest near Cabondo, young fr. in June, Welwitsch 1233 (type)!

21. **D. deflexum** Klotzsch in Peters Reise Mossamb. Bot. 109, t. 20 (1861); Schnizlein Icon. 4: t. 240.

*Shrub* up to 2 m. high; branchlets tomentose when young, becoming glabrous. *Leaves* elliptic or ovate-elliptic, acutely acuminate, rounded to shortly cuneate and frequently asymmetric at the base, 5-8 cm. long, 3-5 cm. broad, inconspicuously hairy on both surfaces, becoming glabrous; lateral nerves about 5 pairs,

tertiary nerves markedly reticulate above and below ; petiole about 5 mm. long, tomentose ; stipules linear, 3 mm. long, tomentose. *Cymes* small and dense, 1-2 cm. long, pedunculate, tomentose ; pedicels about 2 mm. long, puberulous. *Sepals* elliptic, 3 mm. long, tomentellous outside, glabrous within, reflexed in flower. *Petals* slightly longer than the sepals, less than 1 mm. broad, bifid for about  $\frac{1}{3}$  their length, puberulous outside. *Stamens* slender, 3 mm. long ; anthers very small, filaments glabrous. *Ovary* tomentose ; stigma shortly 2-3-lobed. *Fruit* rounded or obscurely 2-3-lobed, obtusely apiculate, 1.5 cm. diam., symmetric or slightly excentric, velvety-tomentose, smooth or with reticulate ridges.

TANGANYIKA TERRITORY. Bagamoyo, Oct., *Kirk* ! Dar-es-Salaam, Nov., *Kirk* 125 ! Amboni, *Holst* 2700 !

PORTUGUESE EAST AFRICA. Cabaceira Peninsula, *Peters* (type) !

22. **D. Eickii** Ruhl. in Engl. Bot. Jahrb. 33 : 80 (1902).

*Shrub* ; branchlets pubescent, becoming glabrous, lenticels fairly numerous on older specimens. *Leaves* oblong-elliptic, gradually acuminate at the apex, cuneate at the base, 6-10 cm. long, 2-4 cm. broad, glabrous except for a few hairs on the midrib on both surfaces ; lateral nerves 5-7 pairs, hardly visible above, fairly prominent below, midrib impressed above ; petiole sparsely hairy when young, becoming glabrous, about 5 mm. long ; stipules caducous. *Cymes* pedunculate, branched, about 2 cm. long ; peduncle, pedicels and calyx-lobes covered with brown tomentum. *Flower-buds* globose. *Sepals* with a distinct groove down the middle. *Flowers* not more than 3 mm. long. *Petals* broadly obovate, bifid for about  $\frac{1}{3}$  their length. *Stamens* about 1.5 mm. long ; filaments rather thick. *Ovary* tomentose ; style very short, 2-3-fid almost to the base. *Fruit* obovoid, about 2 cm. long and 1.5 cm. broad ; style excentric, brown-tomentose, verrucose.

TANGANYIKA TERRITORY. Usambara : Kwai, *Eick* 132 (type) !

23. **D. Wildemanianum** Exell in Journ. Bot. 1927, Suppl. Polypet. 66.

*Branchlets* glabrescent. *Leaves* elliptic, gradually and sharply acuminate at the apex, cuneate at the base, about 6 cm. long and 2.5 cm. broad, glabrous on both surfaces, membranous ; lateral nerves about 8 pairs ascending at rather a wide angle, tertiary nerves reticulate, venation not conspicuous ; petiole about 3 mm. long, sparsely and shortly hairy ; stipules caducous. *Inflorescence* pedunculate, about half the length of the leaves ; peduncle 1.5 cm. long, puberulous. *Flowers* about 3 mm. long. *Sepals* oblong, grey-tomentose on the outside, glabrous and dark coloured within. *Petals* obovate, shortly bifid. *Stamens* exceeding the petals in length. *Ovary* woolly-tomentose ; style as long as the stamens, stigma unequally bilobed.

ANGOLA. Primæval forest near the Villa Sange, Golungo Alto, fl. Oct., *Gossweiler* 4387 ! Between Monte Bello and Queta Railway Station, fl. Nov., *Gossweiler* (without number) !



24. **D. umbellatum** *Chod.* in *Bull. Herb. Boiss.* 3: 671 (1895).

A tall climbing *shrub* with long rambling branches; branchlets tomentose when young, becoming pubescent to almost glabrous; internodes up to 5 cm. long. *Leaves* elliptic to oblong, acutely and sharply acuminate, rounded at the base, 6–10 cm. long, 2.5–5 cm. broad, pubescent on both surfaces when young, becoming almost glabrous above except on the principal nerves; lateral nerves about 5 pairs, impressed above, petiole 2 mm. long; stipules subulate, 2 mm. long, pubescent, persistent. *Cymes* 2 cm. long; peduncle pubescent; bracts similar to stipules, bracteoles situated just beneath the flower; pedicel up to 3 mm. long, pubescent. *Sepals* broadly lanceolate, 2 mm. long, grey-tomentose on the outside, glabrous and dark-coloured inside. *Petals* as long as the sepals, linear, entire with truncate apex. *Stamens* exserted. *Ovary* and style glabrous.

ANGOLA. Golungo Alto: dense virgin forest at Capopa, Mar., *Welwitsch* 4651! 4652! 4653! 4654!

25. **D. retroversum** *Hiern* in *Welw. Cat.* 1: 139 (1896). *D. parvifolium* *Engl. Bot. Jahrb.* 23: 136 (1896).

*Climber*; branchlets slender, somewhat straggling, striate and covered with brown pubescence, the lateral spreading almost at a right angle. *Leaves* lanceolate to elliptic, gradually acuminate at the apex, mucronate, rounded and sometimes slightly asymmetric at the base, very variable in size from about 4–8 cm. long, 1.5–2.5 cm. broad, glabrous above, a few hairs on the principal nerves below; lateral nerves 4–5 pairs, broadly ascending and looped about 1 mm. from the margin, conspicuous below; pedicels up to 2 mm. long, pubescent; stipules linear, about 1.5 mm. long, pubescent. *Flowers* umbellate, few, up to 2 cm. long; peduncle, pedicels, bracts and outer surface of sepals covered with grey pubescence. *Sepals* 4 mm. long. *Petals* slightly longer, bifid for about half their length, clawed at the base, dark purple. *Stamens* far exserted, with slender filaments. *Ovary* pubescent; style glabrous, stigma very shortly lobed. *Fruit* oblong, beaked, sparsely hairy, with persistent calyx, yellow when ripe.

ANGOLA. Golungo Alto, 325–800 m., *Welwitsch* 4655! 4656! 4657! 4658! 4659! 4660! 4661! 4668! Cazengo, Apr., *Pearson* 2305! *Gossweiler* 4565! 4586! 4658! 4820! 4832!

## XXI.—NOTES ON AFRICAN GRASSES, VII\*.

### UGANDA GRASSES.

These notes on the grasses of the slopes of Mt. Elgon and the surrounding districts have been compiled from letters received from Mr. J. D. Snowden, who is studying the grasses in that part of Uganda and has forwarded large collections to Kew.

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\*Continued from *K.B.* 1928, p. 41.

The following is a rough outline of the three main grazing lands for stock on the slopes of Mt. Elgon and the districts round about. First, at altitudes of 3500 to 5000 ft. (or to 6000 ft. in drier localities) there is the natural savannah or land cultivated so long ago as to have lost all trace of former cultivation. Here occur tall, strong-growing grasses, such as *Hyparrhenia rufa* Stapf, *Brachiaria brizantha* Stapf, *Themeda triandra* Forsk., *Panicum maximum* Jacq., *Setaria aurea* Hochst. ex A. Br., *S. longisetata* P. Beauv., *Sorghum rigidifolium* Stapf, *Echinochloa pyramidalis* Hitchc. et Chase, *Cymbopogon afronardus* Stapf, etc. In these parts *Pennisetum purpureum* Schum. is not common, but is sometimes found and then usually near streams.

At the same altitudes as the above, there is land which has been cultivated and then left. Here many shorter and weaker grasses have become established; these, if kept cut down or if closely grazed by stock (especially near house compounds, roadsides, etc.), form a short, but often rather open turf, which is liable to dry out and be eaten away by white ants during the dry season. In such places are found the following grasses, *Amphilophis insculpta* Stapf, *Paspalum scrobiculatum* var. *Commersonii* Stapf, *Digitaria abyssinica* Stapf, *D. ternata* Stapf, *Setaria rubiginosa* Miq., *Tricholaena rosea* Nees, *Aristida adscensionis* L., *Sporobolus pyramidalis* P. Beauv., *Perotis indica* O. Kuntze, *Harpachne Schimperii* Hochst., *Eragrostis ciliaris* Link, *E. major* Host, *E. tenuifolia* Hochst., *E. tremula* Hochst., *Cynodon Dactylon* Pers., *Chloris Gayana* Kunth, *C. pycnothrix* Trin., *Eleusine indica* Gaertn., *Dactyloctenium aegyptium* Richt., etc.

In wet localities at higher altitudes (5000-8000 ft.), the natural vegetation is bush and forest with grasses only in the clearings; but after cultivation, which in these parts consists merely of removing the undergrowth and hoeing a few inches deep, the following grasses, etc. take possession of the ground:—*Sporobolus indicus* R. Br., *Setaria rubiginosa* Miq., *Eragrostis Taffzagra* Steud., *Digitaria abyssinica* Stapf, *Pennisetum clandestinum* Hochst., *Pennisetum Snowdenii* C. E. Hubbard, *Trifolium Johnstonii* Oliver, *Dolichos maranguensis* Taub. These form a thick matted turf which is eagerly and closely cropped by stock, and no other vegetation can exist except such bushes as were left standing at the time of cultivation. *Pennisetum clandestinum* Hochst. is found as low as 4000 ft. in wet valleys, but at these low altitudes species of *Eragrostis*, *Cynodon* and *Digitaria* are usually predominant. This *Pennisetum* is easily overlooked amongst other grasses, but its presence may be detected by the long white filaments of the stamens.

***Oxytenanthera abyssinica* Munro.** Mr. J. D. Snowden has supplied us with the following information on this bamboo, which was enumerated in the *Kew Bulletin* 1927, p. 304.

“This species covers several square miles in the Simu valley, but at one time it evidently covered a much larger area, as I have

recently discovered quite a large patch of it near Mbale (about 15 miles from the Simu valley). On making enquiries I found that the chief who owns this land near Mbale stopped the natives from cutting down the bamboos, with the result that the land is rapidly reverting to bamboo forest again. I have also seen a few clumps here and there between this area and the Simu valley, suggesting that at one time the whole area was more or less connected up. The forest is not entirely confined to bamboos, but contains a few scattered trees, such as *Combretum splendens* Engl., *Entada abyssinica* Steud., *Gymnosporia senegalensis* Loes, *Bauhinia Thonningii* Schum., *Protea madiensis* Oliver, etc. The poles of the bamboo are much used by the natives for the roofs of their huts, for which purpose they are admirably adapted, although they are sometimes attacked by borers."

The following two new species have recently been received from Mr. Snowden.

**Panicum Snowdenii** C. E. Hubbard, sp. nov.; affinis *P. pusillo* Hook. f., sed culmis longioribus, spiculis glabris obtusis, gluma superiore 9-nervia, lemmate anthoecii inferioris 9-11-nervio differt.

*Gramen* annuum. *Culmi* laxi, 20-70 cm. longi, ad 0.6 mm. diametro, geniculato-ascendentes, tenuiter filiformes, debiles, teretes, striati, ramosi, multinodi, nodis inferioribus plerumque radicales, glabri laevesque. *Foliorum* vaginae moderate laxae vel solutae, plerumque internodiis breviores et 1-2 cm. longae, subherbaceae, tenuiter striatae, nodis et ore laxae pilosae, marginibus longe ciliatis; ligulae brevissimae, membranaceae, ciliolatae; laminae lanceolato-lineares, basi rotundatae, longe et tenuiter acutae vel lineari-oblongae vel lanceolatae et subacutae, 1-3 cm. longae, 2-4 mm. latae, planae, tennes, molles, patentes, demum reflexae, laxae et molliter pilosae vel fere glabrae, ciliatae, obscure nervosae. *Panicula* ovata vel pyramidata, exserta vel basi in vagina summa inclusa, erecta, 1.5-4.5 cm. longa, 1-2.5 cm. lata, laxissima: rhachis filiformis, teres, tenuiter striata, nodis pubescens, cetera glabra vel obscure et sparse glanduloso-pilosa, internodiis inferioribus 0.7-1.2 cm. longis; rami solitarii, erecto-patentes, horizontaliter patentes vel deflexi, capillares, glabri vel sparse pubescentes, inferiores 0.5-1.8 cm. longi, 1-divisi, superiores simplices; pedicelli 1-4 mm. longi, minute scaberuli. *Spiculae* oblongae vel anguste elliptico-oblongae, obtusae, 2.5 mm. longae, circ. 1 mm. latae, glabrae, tenuiter nervosae, pallide virides. *Glumae* inaequales, tenuiter membranaceae; inferior explanata ovata, subacuta, 1.5-2 mm. longa, 1-sub-3-nervia, nervis lateralibus tenuissimis brevibus; superior explanata elliptico-oblonga, rotundato-obtusa, spiculam aequans, 9-nervia. *Anthoecium inferius* vacuum; lemma glumae superiori simile sed 9-11-nervium; palea ovata, obtusa, 1.5-1.7 mm. longa, hyalina, carinis scaberulis et plerumque basi sparse ciliatis. *Anthoecium superius* ♀; lemma elliptico-oblongum, subacutum, 2 mm. longum, albidum, laeve, tenuiter coriaceum;



palea lemmati aequilonga. *Antherae* lineares, 1.2 mm. longae, sanguineo-purpureae.

TROPICAL AFRICA. Uganda: Mt. Elgon; Butandiga, 2100-2400 m., in shade of and near bushes, following cultivation, August, 1927, *Snowden* 1188.

**Pennisetum Snowdenii** C. E. Hubbard, sp. nov.; affinis *P. geniculato* Leeke, sed culmis gracilioribus plerumque brevioribus plurinodis, laminis foliorum angustioribus, panícula tenuiore minus densa plerumque angustiore atque brevior, setis minus numerosis, lemmate anthoecii inferioris brevior uninervio magis abrupte acuminato mucrone brevior differt.

*Gramen* perenne, laxè fasciculatum. *Culmi* e rhizomate tenui geniculato-ascendentes, 10-45 cm. alti, graciles, inferne compressi, simplices vel inferne ramosi, ad 7-nodi, glabri laevesque. *Foliorum* vaginae tenuiter striatae, internodiis breviores, ore sparse pilosae ceterum glabrae laevesque, inferiores carinatae, solutae, persistentes, latae, chartaceae, pallide stramineae, superiores arctae demum laxae; ligulae ad seriem ciliatorum densorum minorum reductae; laminae lineares, basi angustatae, longe et tenuiter acutae, 4-10 cm. longae, ad 3 mm. latae, conduplicatae vel leviter involutae, firmae, glabrae laevesque. *Panicula* spiciformis, 1.5-4 cm. longa, 4-7 mm. diametro (setis exclusis), cylindrica, densa, stricta vel leviter flexuosa, purpurascens; rhachis scaberula; pedicelli minutissimi, scaberuli; involucri setae paucae (circ. 6), inaequales, 3-8 mm. longae, scaberulae, liberae, tenuissimae, flexuosae, purpureae. *Spiculae* solitariae, ambitu lanceolatae, e dorso ovato-lanceolatae vel lanceolato-oblongae, acutae, 3.5-4 mm. longae, pallide virides, apice purpureae. *Gluma* inferior absens; gluma superior truncata, 0.5 mm. longa, hyalina, enervia. *Anthoecium inferius* ad lemma reductum; lemma explanatum oblongo-ellipticum, acuminatum, mucronatum, ad 1.8 mm. longum, tenuiter membranaceum, 1-nervium. *Anthoecium superius* ♂; lemma explanatum oblongo-ellipticum, abrupte acuminatum, breviter mucronatum, 3.5-4 mm. longum, 5-nervium, apice et mucrone scaberulum; palea ovata, truncata, 3 mm. longa. *Lodiculae* minutissimae vel nullae. *Antherae* lineares, 2 mm. longae, apice penicillatae. *Styli* usque ad medium connati; stigmata libera.

TROPICAL AFRICA. Uganda: Mt. Elgon; Bulago, 1800-2100 m., in short grass turf following cultivation, August, 1927, *Snowden* 1181.

Vern. name: *Nabidulungu* (Lugishu).

## XXII.—ON SOME VIOLETS FROM THE ANDES.

WILHELM BECKER.

The Director of the Royal Botanic Gardens, Kew, has kindly sent me a number of South American species of *Viola* to examine and name. Some of these were collected by himself in Peru and Bolivia

in 1903. The remainder were collected by Mr. H. F. Comber during his two expeditions to the Andes of Argentina in 1925-1927, and comprise the whole of his gatherings of this genus. The material is very interesting, and I have found a large number of new species which belong to the sections *Andinium* and *Chilenium*. The following is a complete enumeration.

**Viola Hillii** W. Bckr., sp. nov. (§ *Andinium* W. Bckr.)

*Herba* perennis; rhizoma crassum, perpendiculare, lignosum, circiter 10 cm. longum, circiter 5 mm. crassum, in parte suprema breviter 2-4-partitum et reliquiis foliorum demortuorum instructum. *Rosulae* parvae, circiter 1.5 cm. latae, foliis erectis angustis circiter 8 mm. longis formatae. *Folia* lineari-oblonga, utrinque pubescentia, crassiuscula, supra subfoveolata, distincte 4-5-repando-crenata; stipulae rudimentariae. *Flores* vix 5 mm. longi, breviter pedunculati, basi bracteolati; bracteolae oblongae, margine subciliatae; pedunculi retrorsum hispidi. *Sepala* oblonga, acutiuscula, ciliata. *Petala* superiora atque lateralia anguste oblonga, tri-longinervia; petalum infimum obcordato-triangulari, valde dilatatum, plane emarginatum, brevissime calcaratum. *Ovarium* globulosum, distincte longinervium; stylus basi distincte geniculatus, subhorizontaliter rostellatus, apice utrinque lobulo rotundiusculo breviter stipitato ornatus.

BOUNDARY OF PERU AND BOLIVIA: on red sandstone hills between Moho and Vilque Chico, north-east of Lake Titicaca, 4050-4200 m., Feb. 1903, *A. W. Hill* 28 (type in Herb. Kew.).

This species occupies an isolated position among the previously known types of the section *Andinium*. It is proposed to figure it in the *Icones Plantarum*.

**V. Weberbaueri** W. Bckr. in Engl. Bot. Jahrb. xxxvii. 588 (1906).

PERU: on dry sandy hillsides near the coast at Mollendo, Jan. 1903, *A. W. Hill* 29.

**V. pygmaea** Juss. ex Poir. in Lam. Encycl. viii. 630 (1808); Wedd., Chlor. And. ii, t. 87 B (1857).

BOLIVIA: hills around Capacabana, Lake Titicaca, 3900 m., Jan. 1903, *A. W. Hill* 27; peaty moorland between San Pablo and Achacacha, 4200 m., Feb. 1903, *A. W. Hill* 26.

**V. Cotyledon** Ging. in DC. Prodr. i. 300 (1824).

ARGENTINA, 38-41° S: Pulmari, 900 m., Jan. 1926, *H. F. Comber* 369a; "A thick-rooted species with blue flowers and fleshy leaves, making clumps 6 inches across. Found in sand near river." Los Helechos, near Lago Huechulafquen, 1050 m., Dec. 1926, *H. F. Comber* 901; "A tap-rooted perennial forming large tufts 6-18 inches across. Flowers large, white or pale lilac, variable. Leaves hard, fleshy. Grows on sandy tracts in full sun." *Ibid.*, *H. F. Comber* 900; "As the last, but flowers deep blue, bearded inside with white hairs."

**Viola Cotyledon** Ging. subsp. **lologensis** W. Bckr., subsp. nov.

*Flores* albi, violaceo-lineati, in omnibus partibus glaberrimi et minores, circiter 1·2 cm. lati. *Petala* superiora oblongo-obovata, 5 mm. longa, 3·5 mm. lata; petala lateralibus oblique oblongo-obovata, ebarbata, 6–7 mm. longa, vix 4 mm. lata; petalum infimum obcordato-triangulare, in fronte emarginatum, planum vel basi naviculare et flavo-maculatum, horreolum pollinis non pilosum gerens, 6 mm. longum et in parte anteriore 6 mm. latum. *Sepala* lanceolata. *Stylus* clavatus, in fronte breviter semi-rostellatus crista tripartita munitus; 2 lobuli laterales penduli, 1 lobulus brevius retrorsum directus, ergo ut in *V. Cotyledon* typica. *Calcar* vix 2 mm. longum.

ARGENTINA, 40° S: Vega Lolog, 810 m., Dec. 1926, *H. F. Comber* 816 (type in Herb. Kew.); "A long-rooted perennial from sandy stony places. Flowers white with violet lines and yellow eye. Whole plant tinged purplish. Leaves with translucent margin." Hill near Vega Lolog, 1380 m., Dec. 1926, *H. F. Comber* 853; "Perennial with long taproot, from sandy hilltop. Leaves purplish. Flowers white with blue lines and yellow eye."

**Viola dasyphylla** W. Bckr., sp. nov. (§ *Andinium* W. Bckr.)

*Herba* perennis; rhizoma verticale, crassum, non valde elongatum, valde radicum, in parte superiore multipartitum. *Caules* circiter 5 cm. alti, ovoidei, 2–3 cm. lati (foliis inclusis). *Folia* inferiora siccata, nigrescenti-fusca; superiora fuscilla usque dilute viridia, circiter 1·5 cm. longa; lamina late oblonga, acuminata, basi sensim angustata, 5 mm. longa, 3 mm. lata, margine albedo-cartilaginea; margo cartilagineus vix 0·5 mm. latus; petioli circiter 1 cm. longi. *Corollae* ad plantae apicem coronam formantes, folia vix superantes, dilute coloratae, pallide flavae (teste lectore albae) et violaceo-afflatae atque lineatae, vix 1 cm. latae. *Petala* superiora oblongo-obovata, apice subemarginata; petala lateralibus oblique obovata, subtruncata, non barbata; petalum infimum obcordatum, profunde emarginatum, basi pollinis horreolum flavum non pilosum gerens, breviter calcaratum; calcar tenue, subrecurvatum, 1 mm. longum. *Stamina* non ciliata. *Ovarium* globulosum; stylus basi geniculatus, adversus apicem subclavatus, apice breviter suberecto-rostellatus et crista plane semi-infundibuliformi in fronte aperta subtriloba ornatus; margines cristae laterales in lobulos horizontales deorsum curvatos breves transeuntes.

ARGENTINA, 40° S: Cerro Colohuincul, between San Martin de los Andes and Lago Huechulafquen, 2100 m., Dec. 1926, *H. F. Comber* 884 (type in Herb. Kew.); "Perennial. Flowers striped with blue. Leaves green or purplish. Common and rather variable." *Ibid.*, *H. F. Comber* 883; "Flowers white with yellow eye, sweet-scented."

**V. petraea** W. Bckr. in Fedde Repert. xxi. 354 (1925).

ARGENTINA, 38–41° S: Barda Las Lajitas, 2100 m., Dec. 1925, *H. F. Comber* 302; "Flowers white and blue-lined, or lilac, or even



blue. Leaves dull olive-green, white-edged. Common." Sierra Mamuil Malal, near Lago Huechulafquen, 1800 m., Dec. 1926, *H. F. Comber* 917; "Deep-rooted perennial from near the snowline. Flowers deep blue or pink, bearded inside. Leaves dark green or purplish, with white margin. On stony soil with loam beneath. Variable." *Ibid.*, *H. F. Comber* 919; "As the last but with pale blue flowers and rounder leaves."

*f. albida* *W. Bckr.*, *f. nov.*; *flores albid.*

*Ibid.*, *H. F. Comber* 918 (type in Herb. Kew.); "White form of last from same place. Flower large, good, variable."

*V. Cotyledon*, *V. dasyphylla* and *V. petraea* stand together among those species of the Section *Andinium* which possess a narrow cartilaginous leaf-margin. *V. petraea* has the broadest leaves, which in shape approach those of *V. Cotyledon*. *V. dasyphylla* and *V. Cotyledon* subsp. *lologensis* exhibit points of strong resemblance. Both have small flowers with completely glabrous petals and shorter spurs. *V. Cotyledon* has the most strongly hairy petals; moreover the lower petal of this species is particularly hairy, whereas in *V. petraea* it is glabrous or shows a more or less strong indumentum only on the margin.

*V. cyathiformis* *W. Bckr.* in Fedde Repert. xxi. 355 (1925) must also be placed near the above species. It has a cup-shaped three-lobed style-crest, easily distinguished by this upward inflexion from the flat three-lobed style-crests of its allies. In *V. petraea* the inner, central, point of the crest does not develop in extreme forms (*e.g.*, the type) and the lateral points hang down.

***Viola Comberi* *W. Bckr.*, *sp. nov.* (§ *Andinium* *W. Bckr.*).**

*Herba* perennis; *rhizoma* verticale, crassum, lignosum, verisimiliter in parte superiore non partitum, in caulem dense foliatum circiter 4 cm. longum transiens. *Planta* ovoidea, circiter 3 cm. lata foliis inclusis. *Folia* circiter 1 cm. longa, inferiora siccata nigrescentifusca, superiora dilute viridia; *lamina* orbiculari-spathulata, circiter 5 mm. longa et lata, apice subacuminata et in mucronulum transiens, margine albido-cartilaginea, in petiolum aequilongum subabrupte angustata; *margo* cartilagineus vix 0.5 mm. latus, nec denticulatus nec ciliatus, adversus apicem non angustior. *Flores* subconspicui, circiter 1 cm. lati, ad plantae apicem coronam formantes, folia vix superantes, flavi, dense obscure lineati. *Sepala* lanceolata, 5 mm. longa, dilute viridia, margine hyalina. *Petala* superiora oblongo-obovata; *lateralia* obovata, clavato-barbata; *infima* obcordata, profunde et subanguste emarginata, basi subelongata, *horreolum* pollinis non pilosum gerens, *calcar* recurvato circiter 4 mm. longo. *Stamina* dense ciliata. *Ovarium* globulosum; *stylus* vix geniculatus, adversus apicem sensim clavatus, apice breviter suberecto-rostellatus et subtrilobo-cristatus; *crista* non infundibuliformis, sed 2 lobis horizontalibus lateralibus

subdeorsum curvatis et uno lobo medio retrorsum directo brevior ornata.

ARGENTINA, 40° S: Cerro Colohuincul, between San Martin de los Andes and Lago Huechulafquen, 2100 m., Dec. 1926, *H. F. Comber* 882 (type in Herb. Kew.); "Only one plant seen. Flowers yellow, striped with brown lines."

***Viola coronifera*** *W. Bckr.*, sp. nov. (§ *Andinium* *W. Bckr.*).

*Herba* perennis; rhizoma verticale, crassum, lignosum, in parte superiore verisimiliter nunquam partitum; planta ex eo interdum regulariter clavaeformis vel habitu ovoideo (foliis inclusis); caulis dense foliatus, circiter 7–9 cm. altus, in medio 5–6 cm. latus foliis inclusis. *Folia* longe petiolata, circiter 2 cm. longa petiolis inclusis, inferiora siccata nigrescenti-fusca, superiora dilute viridia; lamina orbiculari-spathulata, circiter 5–6 mm. longa et lata, apice subacuminata et in mucronulum transiens, margine albido-cartilaginea, in petiolum circiter 1.5 cm. longum subabrupte angustata; margo cartilagineus vix 0.5 mm. latus, nec denticulatus nec ciliatus, adversus folii apicem non angustior. *Flores* subconspicui, 1.2 cm. lati, ad plantae apicem coronam formantes, folia vix superantes, aurantiaci. *Sepala* lanceolata, pallidissime viridia, margine hyalina, trinervia, circiter 8 mm. longa. *Petala* 7–9 mm. longa; superiora oblique oblongo-obovata, unguiculata; lateralia obovata, apice subtruncata, basi distincte clavato-barbata; petalum infimum late obcordatum, apice emarginatum, basi horreolum pollinis non pilosum gerens, longe calcaratum; calcar circiter 1 cm. longum, deorsum recurvatum, apice sulcatum. *Stamina* non ciliata. *Ovarium* globulosum; stylus basi vix geniculatus, clavatus, apice breviter erecto-rostellatus et crista infundibuliformi tamen in fronte aperta circumdatus.

ARGENTINA, 38–41° S: Cerro Colohuincul, between San Martin de los Andes and Lago Huechulafquen, 2250 m., Dec. 1926, *H. F. Comber* 881 (type in Herb. Kew.); "A hard-leaved perennial with long tap-root from bare windy mountain top, growing in sand, stones and a little fine soil. Flowers yellow or soft orange, sweet-scented. A beautiful plant." Vega Lolog, 840 m., Dec. 1926, *H. F. Comber* 854; "Perennial from small hill in valley. Usually simple rosette. Leaves light green or yellow. Flowers past, but show dry yellow petals. Confined to an area 30 yards square, and growing in stones, gravel and sand."

It is proposed to figure this species, which is very well-marked by reason of the long spurs, in the *Icones Plantarum*.

Var. ***minoriflora*** *W. Bckr.*, var. nov.; flores flavi vel obscure fusci, minores; petala 6–8 mm. longa.

Barda las Lajitas, 670 m., Dec. 1925, *H. F. Comber* 324 (type in Herb. Kew.); "Flowers yellow or dark brown. Exposed site on top of mountain ridge."

***Viola escondidaensis* W. Bckr., sp. nov. (§ *Andinium* W. Bckr.)**

*Herba* perennis; rhizoma subterraneum, ramosum, in caules circiter 8-10 cm. altos suberectos subdense foliatis transiens; planta plus minusve pallide viridis, dense albido-hispida et pubescens. *Folia* superiora circiter 2 cm. longa, inferiora sensim breviora, angusta, 1.5-2 mm. lata, adversus apicem elongato-spathulata et apiculata, supra sublaevia et glabrescentia, subtus distincte hispida, integerrima, crassiuscula; stipulae non observatae. *Flores* in caulis parte superiore inserti, longius pedunculati, pallide virides, violaceo-lineati (teste lectore); pedunculi circiter 2 cm. longi, plus minusve dense hispidi, basi infima brevissime bracteolati. *Sepala* oblongo-lanceolata, margine hyalina et disperse ciliata. *Petala* omnia dense longitudinali-nervata, nervis adversus apicem saepius ramosis; superiora spathulata, 7 mm. longa, 6 mm. lata, adversus basim usque ad 3 mm. latitudinem angustata, basi violaceo-maculata; lateralia late spathulata, 8 mm. longa, 7 mm. lata, adversus basim usque ad 2.5 mm. latitudinem angustata, basi pilis paucis ornata; petalum infimum calcar recurvo 3 mm. longo, elongato-obcordatum, apice profunde emarginatum, violaceo-afflatum, adversus basim aurantiaco- atque flavo-maculatum et horreolum pollinis bifariam longe et dense pilosum gerens. *Stamina* breviter pilosa; connectivi processus aurantiacus, basi dilatatus et hyalinus. *Ovarium* globuloso-conoideum; stylus basi geniculatus, valde clavatus, apice derupte-deplanatus et breviter acuteque rostellatus, 2 lobulis angustis retroversis subdivaricatis adhaerentibus munitus.

ARGENTINA, 38-41° S: Valle Escondida, Territory of Neuquen, 1925-6, *H. F. Comber* 241 (type in Herb. Kew.); "Perennial with underground stems. Flowers pale green with blue lines."

This species is allied to *V. sacculus* Skotts. in *Svensk. Vet. Akad. Handl.* n.s. lvi, no. 5, 266, tt. 20, f. 5 and 23, f. 2 (1916). It is proposed to figure it in the *Icones Plantarum*.

***Viola squamulosa* W. Bckr., sp. nov. (§ *Andinium* W. Bckr.).**

*Rhizoma* perenne, verticale, elongatum, circiter 2 mm. crassum, sublaeve, subterraneo-ramosum, in caulem gracilem indivisum dense foliatum circiter 10 cm. longum glaberrimum transiens. *Folia* glaberrima, carnosula, dense disposita, 1-1.5 cm. longa, longe petiolata; lamina oblonga, circiter 5 mm. longa et 2.5-3 mm. lata, apice obtusiuscula, adversus basim in petiolum 6-9 mm. longum sensim angustata, adversus margines obscure lineata; stipulae distincte conspicuae, breves, ovato-lanceolatae, virides, 1.5 mm. longae, ad caulem squamiformiter adjacentes. *Flores* folia vix superantes, albidii, violaceo-afflati, cum calcar circiter 1 cm. longi; pedunculi basi infima bibracteolati; bracteolae anguste lanceolatae, 2 mm. longae. *Sepala* lanceolata, breviter et truncate appendiculata, margine hyalina. *Petala* superiora atque lateralia plus minusve oblique obovata, subungiculata, circiter 7 mm. longa et 2.5-3 mm. lata, non barbata; petalum infimum basi flavum, naviculare, carinatum, curvatum, in calcar rotundatum transiens,



in parte anteriore late obcordatum, horreolum pollinis non pilosum gerens; calcar 2 mm. longum et latum. *Ovarium* globoso-conoideum; stylus basi non geniculatus, subito clavato-incrassatus, semi-erecto-rostellatus, decliviter truncatus, super capitulum appendicibus 2 brevissimis crassiusculis vix pendentibus instructus.

ARGENTINA, 40° S: Cerro Colohuincul, between San Martin de los Andes and Lago Huechulafquen, 2250 m., Dec. 1926, *H. F. Comber* 885 (type in Herb. Kew.); "Perennial with fleshy, but not hard, brownish leaves from mountain top. Propagation by means of underground stems. Flowers white, tinged with blue."

The style agrees with that of *V. sacculus* Skottsb., to which this species is allied. The stems are taller; the leaves not spatulate; the petioles narrower than those of *V. sacculus*; whilst the stipules which lie on the stems like scales, and the dark lines on the leaf-margins, are characteristic features.

*V. auritella* W. Bckr. and *V. patagonica* W. Bckr., both found in Patagonia, are also related to *V. squamulosa* and *V. sacculus*; and *V. escondidaensis* W. Bckr., described above, also belongs to this group.

***Viola tectiflora* W. Bckr., sp. nov. (§ *Andinium* W. Bckr.).**

*Herba* annua; rosula densifolia, plana atque circularis, usque ad 6 cm. lata. *Folia* ovato-oblonga, basi in petiolum plus minusve angustata, lamina 5-7 mm. longa, 2.5-4 mm. lata, utrinque plerumque 4-5-inciso-crenata, excisuris obtusis rotundatis distinctis, supra glabra, laevia, obscure viridia, explanata, subtus glabra, tamen adversus margines et praecipue adversus basim et ad partem superiorem petiolorum longe ciliata, ceterum glandulis linearibus fuscis munita; petioli longi, basi glabri, adversus medium rosulae sensim breviores; stipulae hyalinae, anguste lineares, breves. *Flores* folia non superantes, albidi, violaceo-afflati, cum calcaribus brevissimo 6-7 mm. longi. *Sepala* ovato-oblonga, margine hyalina, obtusiuscula, 4 mm. longa, glandulifera, infima longe ciliata, brevissime appendiculata. *Petala* superiora oblique oblongo-obovata, sensim angustata, unguiculata, 5 mm. longa, apice subtruncata, basi late unguiculata, adversus marginem superiorem papillis pilisque clavatis dense munita; petalum infimum triangulari-obcordatum, subcarinatum, in fronte 5 mm. latum plane emarginatum, in medio apiculatum, cum calcaribus 7 mm. longum; horreolum pollinis modo ad basim pilis instructum. *Processus staminum* calcaratorum hyalini, transversim rugosi. *Ovarium* ovoideum; stylus suberectus, basi vix geniculatus, clavatus, horizontaliter rostellatus, crista semiorbiculari erecta paullum tripartito-incisa ornatus.

ARGENTINA, 38-41° S: Zapala to Palau Mahuida, Territory of Neuquen, 900-1800 m., Nov. 1925, *H. F. Comber* 115 (type in Herb. Kew.); "Annual, plentiful in sand. Leaves purplish-brown with

purple oil-glands, quite hiding all the flowers and fruits. Flowers white, tinged with lilac. A most curious plant."

*V. argentina* W. Bckr. is similar to this, but has longer and broader stipules, and thicker leaves without glands. The leaves are less deeply cut, and the outer leaves have much shorter petioles. The style-crest is directed backwards, whilst that of *V. tectiflora* is quite erect.

**V. microphyllus** Poir. in Lam. Encycl. viii. 628 (1808); Skottsb. loc. cit., 265, t. 23, f. 5.

*Sepala* ovato-lanceolata, acuminata, pilosa, 4-5 mm. longa, 1.5-1.75 mm. lata; calcar appendices calycis brevissimas non superans, apice sulcatum. *Petala* flava; superiora obovato-oblonga, obtusa, 9 mm. longa, 3.5 mm. lata; lateralia oblique oblonga, adversus apicem subangustata, basi barbata, 11 mm. longa, 4 mm. lata; petalum infimum obtriangulare, apice truncatum et apiculatum, adversus basim longe angustatum subcarinatum, cum calcar 1 cm. longum, antice 8 mm. latum. *Stamina* calcar rotundato munita. *Ovarium* praecipue adversus apicem plus minusve pilosum; stylus basi geniculatus, clavatus, apice truncatus et in fronte rostello brevissimo erecto instructus.

ARGENTINA, 38-41° S: Barda Las Lajas, Territory of Neuquen, 630 m., *H. F. Comber* 270.

**V. maculata** Cav. Ic. vi, 20, t. 539 (1801); Skottsb. loc. cit., 262-3, t. 23, f. 6.

*Sepala* oblongo-lanceolata, glabra, 6 mm. longa, 1.5-2 mm. lata. *Calcar* breve, subrecurvatum. *Petala* obscure flava; superiora obovato-oblonga, 1.2 cm. longa, 5 mm. lata; lateralia obovata, clavato-barbata, 1.3 cm. longa, 6 mm. lata; petalum infimum late obtriangulare, carinatum, non barbatum, apice truncatum et apiculatum, marginibus lateralibus convexis angustatum, cum calcar 1.2 cm. longum, antice 1 cm. latum. *Stamina* pilosa; calcar rotundato instructa; pollinis granula fertilia globulosa, trisulcata. *Ovarium* glabrum; stylus geniculatus, apice truncatus, utrinque pone submarginatus, et in fronte rostello erecto brevi munitus.

ARGENTINA, 40° S.: San Martin de los Andes, 720 m., Nov. 1926, *H. F. Comber* 756; "Perennial with yellow flowers. 'Violeta amarilla.' Common in all parts."

**V. Buchtieni** Gandoger in Bull. Soc. Bot. France lix. 705 (1912); Skottsb., loc. cit. 263.

ARGENTINA, 38-41° S: Polcahue, Territory of Neuquen, 1200 m., Jan. 1926, *H. F. Comber* 464; "Perennial from shady 'Lenga' forest, growing in leaf mould. Flower a beautiful yellow."

**V. Reichei** Skottsb. loc. cit. 265, t. 23, f. 7.

ARGENTINA, 38-41° S: on the same mountain range as Palau Mahuida, Territory of Neuquen, 1927, *H. F. Comber* 1174.

**XXIII.—DECADES KEWENSES PLANTARUM NOVARUM IN HERBARIO HORTI REGII CONSERVATARUM. DECAS CXX.**

**1191. *Lobelia Eryliae* Fischer** [Campanulaceae]; affinis *L. neriifoliae* A. Gray, sed caule fistuloso, foliis minoribus lineari-lanceolatis, glanduloso-serratis, floribus minoribus, ovarioque 10-costato differt.

*Frutex*. *Caulis* glaber, fistulosus, foliorum basi pulvinis magnis provisus. *Folia* superne aggregata, membranacea, lineari-lanceolata, acuminata, basi angustata, secus petiolum decurrentia, 6-14 cm. longa, 0.7-1.5 cm. lata, paucis minimis interspersa, supra sparse albo-hirsuta, infra densius, praecipue in costa nerviisque, marginibus glanduloso-serratis, costa et nerviis 8-10 paribus acute adscendentibus irregularibus supra impressa infra sub-prominentibus, minute reticulatis. *Racemi* terminales axillaresque, rachides glabri sulcati; bracteae lineares, acutae, 2 mm. longae; pedicelli glabri, graciles, 1.3 cm. longi; bracteolis 2, parvis, linearibus, oppositis vel suboppositis, paullo infra flore. *Calyx* ad basin in segmentis 5 linearibus, acutis, glabris, dorso 1-costatis, 8-9 mm. longis, divisus. *Corolla* 1.5 cm. longa, uno latere ad basin fissa, lobis 5, lineari-spathulatis, acutis, 2 lobis, fissuro proximis angustioribus, linea mediana in parte inferiore pubescente excepta glabris. *Stamina* 5, 1-1.1 cm. longa; filamenta plana, in tubo cohaerentia, ima basi excepto; antherae cohaerentes, 2 inferioribus paullo minoribus, apici setis coronatae, ceteris glabris. *Ovarium* turbinatum, glabrum, 5 mm. longum, 10-costatum, costis cum eis sepalorum continuantibus; stylus columnaris, intra stamina inclusus; stigmata 2, late ligulata, crassa, extra antheris paullo exserta. *Capsula* turbinata, apice conica, styli basi persistente terminata, 1 cm. longa.

**CELEBES.** Peak of Bontain, Febr., 2000 m., *Dr. Eryl Smith* 0012. "Evergreen jungle, corolla mauve. Free part of calyx dull red, under surface and edges of leaves purplish-red."

**1192. *Gaertnera lushaiensis* Fischer** [Loganiaceae]; affinis *G. oblanceolatae* King & Gamble, sed ramulis teretibus, foliis elliptico-lanceolatis, nerviis primariis pluribus et corollae tubo calyce multo longiore intus glabro distat.

*Frutex*; ramuli teretes, fistulosi, annulo hirsuto et fibrilloso intra stipulis excepto glabri. *Folia* opposita, membranacea, anguste elliptico-lanceolata, falcata, acuminata vel subcaudata, basi in petiolum attenuata, glabra, 12-30 cm. longa, 3-7 cm. lata, costa prominente, nerviorum primariorum circiter 20 paribus, infra prominentibus, supra obscuris, paullo arcuatis; petioli 0.5-2.5 cm. longi; stipulae conjunctae, parte superiore caduca, basin coriaceam pallidam relinquentes. *Cymae* densiflorae, parvae, pedunculatae, paniculam terminalem glabram formantes; bracteae apud furcas inferiores ovatae, cuspidatae, 7 mm. longae, superioribus minores; bracteolae parvae, dentatae vel lobatae. *Gemmae* anguste clavatae 5-costatae,



ad 1 cm. longae. (Flores aperti non visi.) *Calyx* cupularis, 1 mm. longus; lobi 5, triangulares, acuti. *Corolla* calyce saltem sexies longior, lobi 5, breves, acuti, albo-cerini apice rubidi. *Stamina* 5, in medio tubo corollino inserta; filamenta brevia, subulata; antherae lineares, basi 2-lobae, dorsifixae, filamentis multo longiores. *Ovarium* truncato-conicum, apice concavum, cum calyce aequilongum, 2-loculare; stylus filiformis; stigmata 2, elongata, subulata. *Fructus* non visus.

INDIA. Assam, Lushai Hills at Toxzawl, 600 m., May, Mrs. N. E. Parry 180. "Undergrowth in jungle; growing in shady damp places. Leaves long, curved, hanging."

This appears to be the first record of the genus in the Himalayan Range.

1193. **Didymocarpus Parryorum** Fischer [Gesneraceae]; affinis *D. tristi* Craib, sed foliis rotundatis majoribus, subtus glandulosis, cymis esquamatis, bracteis et sepalis majoribus, corollis erectis minoribus, differt.

*Herba*. *Caulis* validus, 5-8 cm. altus, ad 8 mm. crassa, fusco-hirsuta, radicans. *Folia* 4 opposita, supra cum 1-2 minimis, paria subaequalia, rotundata, apice breviter apiculata, basi cordata, 6-12 cm. diam., supra fusco-adpresse-hirsuta, denseque minute variolata, infra in nerviis adpresse hirsuta, in intervallis sparse pilosa, glandulis stellatis 4-cornutis minutis punctata, basi 9-nervata, supra basin circiter 3-paribus nerviorum lateralium provisa, nervii primarii supra obscuri, infra prominentes; nervii secundarii obscuri, marginibus acute serratis. *Petoli* graciles, supra juxta apicem paullo canaliculati, 4-9 cm. longi, adpresse fusco-hirsuti. *Cymae* dichasiales, axillares; pedunculi ad 25 cm. longi, siccitate sulcati, glabri; bractee in furca quaque 2, suborbiculares, apice rotundatae vel subacutae, glabrae, venosae, in furca infima 8 mm. longae, supra minores; pedicelli 5 mm. longi. *Flores* 2-5 cm. longi. *Sepala* 5, libera, lineari-oblongeolata, subacuta, venosa, glabra, 1 cm. longa, flava. *Corolla* glabra, aurantiaca, tubus anguste cylindricus, 1.3-1.9 cm. longus, 1.5 mm. latus, limbo 2-labiato, labio posteriore 2-lobo, 2 mm. longo, labio anteriore 3-lobo, lobis suborbicularibus, 5-8 mm. longis. *Stamina* 2, glabra,  $\frac{1}{3}$  ab ore inserta. *Antherae* magnae, inclusae. *Staminodia* 2, brevia, linearia. *Discus* pulvinaris vel quasi-cupularis, 1 mm. longus. *Ovarium* lineare, vix stipitatum, 1.1 cm. longum in stylum brevem, columnarem angustatum; stigma magnum, peltatum. *Capsula* linearis, acuminata, glabra, 1.7-2.4 cm. longa, 1 mm. lata. *Semina* minuta, ellipsoidea, muriculata.

INDIA. Assam, Lushai Hills at Sairep, 1700 m. July, Mrs. N. E. Parry 7. "Grows on rocky cliffs. Leaves pale-green, silvered when dry, calyx light yellow, corolla orange red."

1194. **Strobilanthes Parryorum** Fischer [Acanthaceae]; affinis *S. glutinoso* Nees, sed foliis majoribus supra glabris, bracteis majoribus, calyce longioribus, staminibus ciliatis, capsula glabra distat.

*Frutex* alta; ramuli teretes, inferne glabri, superne bruneo-tomentosi. *Folia* ovato-elliptica, denticulata, acuminata, basi acuta, 11–21 cm. longa, 4–11 cm. lata, minute lineolata, tandem supra glabra, semper infra in costa nerviisque plus minusve hispida; costa et 8–12 pares regulorum arcuatorum nerviorum supra subprominentes infra prominentes; petioli 1.5–8 cm. longi, glabrescentes. *Spicae* terminales et axillares, compositae, interruptae; rachis dense bruneo-glanduloso-tomentosa. *Flores* per paria oppositi; bracteae oblongo-spathulatae, apice rotundatae ut bracteolae dense bruneo-tomentosae, pilis glanduliferis ciliatae, 1.25–3 cm. longae; bracteolae 2, lineares, obtusae, 1–1.3 cm. longae. *Calycis* segmenta 5, subaequalia, fere libera, linearia, obtusa, bracteolis similia et aequilonga. *Corolla* tubulosa, ventricosa, paullo curvata, 3.5 cm. longa, alba, lutescens, extra parce puberula, intus glabra lineis 2 ciliatis stamina continuantibus exceptis, parte basale anguste cylindrica 1.5 cm. longa, sursum ad orem 1–1.3 cm. latum ampliata; lobis subaequales late oblongi obtusi, 5 mm. longi. *Stamina* 4; filamenta infra ligulam latam cohaerentia; ligula corollae parti basali  $\frac{2}{3}$  adhaerens sed marginibus fortiter albo-ciliatis liberis, apice in filamenta 4 plana, ciliata, 2 longiora 2 breviora, divisa. *Antherae* lineares, 4 mm. longae, paucis ciliis ventralibus provisae, basi breviter bilobae. *Ovarium* anguste fusiforme, lateraliter compressum, inter semina paullo indentatum, apiculatum, glabrum, 6–7 mm. longum; ovula 4; stylus filiformis, glaber, staminibus longior, infra stigma lineare paullo incrassatus. *Capsula* anguste clavata, apiculata, glabra, 1.5 cm. longa. *Semina* 4, suborbicularia, 4 mm. longa, hygroskopice hirta.

INDIA. Assam, Lushai Hills, Darzo, 1400 m., March, Mrs. N. E. Parry 155.

1195. **Ruprechtia (§Pseudotriplaris) exploratricis** Sandwith [Polygonaceae-Triplariaceae]; *R. molli* Wedd. et *R. fagifoliae* Meisn. forsan affinis, ab ambabus foliis angustis subtus fortiter multinerviis reticulatisque, praeterea ab illa floribus hexasepalis nec trisepalis foliis coriaceis, ab hac foliis subtus satis dense pilosulis differt.

*Arbor* vel frutex, teste lectore 4.5 m. altus, ramulis teretibus cinereis 20 cm. infra apicem 3–4 mm. diametro. *Folia* petiolis glabrescentibus vel minute pubescentibus 4–6 mm. longis 1–1.5 mm. latis suffulta, lanceolata vel oblongo-lanceolata vel rarius anguste ovato-lanceolata, apice acuta, basi acuta attenuata vel obtusa atque fere rotundata, 5–8.5 cm. longa, 1.5–2.5 cm. lata, coriacea, integerima sed margine nonnunquam undulata, supra olivaceo-nigrescentia nervis venulisque immersis sed satis conspicuis, subtus plerumque pallidiora nervis primariis pro genere multis 16–25 fortiter prominentibus subparallelis marginem versus sursum sensim arcuatis anastomosantibusque praeterea rete venularum intricato fortiter reticulata, supra glabra, subtus per nervos reticulationesque dense pilosiuscula,

juniora etiam fere velutina et secus marginem costae barbata, sed senectute glabrescentia pilis in reticulationibus multo minus obviis. *Inflorescentiae femineae* tantum visae, axillares simplices vel apice ramulorum fasciculatae paniculatae, racemosae, ad 5 cm. longae; rhachis teres dense pubescens; bracteae 1-2-florae, late ovatae, dense pubescentes et ciliatae, 1-1.2 mm. longae, ad 1.5 mm. latae; bracteolae ocreiformes, pubescentes et ciliatae, circiter 1 mm. longae; pedicelli filiformes dense pubescentes, ad 3.5 mm. longi. *Flores* hexasepali, tubo pubescente ad 2 mm. longo 1.5 mm. lato; segmenta exteriora utrinque pubescentia, oblonga, 2-5 mm. longa, 1-1.5 mm. lata; segmenta interiora tubo adnata, minuta, glabrescentia vel parce pilosula, 1-2 mm. longa, ad 0.5 mm. lata. *Ovarium* 2-3 mm. longum, ad 1 mm. diametro, basi excepta dense albo-pilosum; styli pilosi 0.5 mm. longi, stigmatibus papillosis anguste ovatis circiter 0.8 mm. longis. *Perianthium fructiferum* 1.5-2 cm. longum, tubo obconico dense pubescente 2 mm. longo, segmentis exterioribus auctis obovato-spathulatis utrinque pubescentibus chartaceis trinerviis reticulatisque versus apicem 5-6 mm. latis. *Fructus* anguste ovoideus, ut ovarium sulcatus angulis obtusis inferne teretibus, supra medium pilosus, 7-8 mm. longus, ad 3 mm. diametro.

BRAZIL. Matto Grosso; Corumbá, in secondary growth, April 1927, *Miss Gwen Dorrien Smith* 45.

The reticulation of the lower surface of the leaves recalls that of the Mexican species *R. fusca* Fernald and *R. macrosepala* Standley.

1196. **Cleistanthus discolor** *Summerhayes* [Euphorbiaceae-Brideliaceae]; affinis *C. perakensi* Gage, a quo foliis pro rata latioribus supra viridibus subtus cinnamomeo-vestitis nervis secundariis distantibus nervarum reticulatione differt.

*Ramuli* teretes, juventute ferrugineo-vestiti, demum glabri, leviter rugulosi. *Folia* breviter petiolata, elliptica vel rarius oblongo-elliptica, apice breviter acuminata, basi cuneata, annotina 8-15 cm. longa, 3.5-8.5 cm. lata, hornotina 3-7.5 cm. longa, 1.2-4 cm. lata, margine basi leviter recurvata, tenuiter coriacea, supra primum sparse adpresse pilosa, deinde glabra, subtus dense cinnamomeo-vestita; costa supra leviter impressa vel in folio maximo prominula, subtus prominens, nervis lateralibus utrinsecus 3-5 e costa angulo acuto orientibus leviter arcuatis subtus prominentibus, reticulatione supra prominula; petiolus 5-7 mm. longus, primum ferrugineo-pilosus, demum glaber, ruguloso-corticatus. *Flores* axillares, glomerati, sessiles, dense bracteati; bracteae deltoideae usque ovatae, apiculatae, carinatae, ferrugineo-pilosae. *Flores* ♂ ignota. *Flores* ♀ 5 mm. longi, glabri; calycis lobi lanceolati, subacuti, 3 mm. longi, basi 1.5-1.75 mm. lati; petala obovata, saepe plus minusve retusa, circiter 1 mm. longa, discum paulo superantia; discus irregulariter lobatus, ovarium cingens et



aequans; ovarium ellipsoideo-globosum, longiuscule adpresse pilosum; styli semel bifidi, stigmatibus clavatis. *Capsula* ignota.

QUEENSLAND. Kuranda, North Queensland, Aug. 1927, *Du Rietz* 7275.

This plant belongs to the section *Chartacei* Jabl., in which it is closely allied to *C. chartaceus*, *C. vestitus*, *C. perakensis* and *C. rufus*. The only other Australian species in the section is *C. Cunninghamii* Müll.-Arg., which is easily distinguished by its smaller leaves which are glabrous below.

1197. **Eria (§Aeridostachyae) Cooperi** *Summerhayes* [Orchidaceae-Epidendreae]; affinis *E. falcatae* J. J. Sm. et *E. Junghuhnii* J.J. Sm., quibus caulibus plurifoliatis, foliis acuminatis, floribus albido-pubescentibus, sepalo dorsali brevior, petalis pro rata latioribus differt.

*Pseudobulbi* cauliformes, teretes, circiter 10 cm. alti, basi vaginis 4 acutis carnis cincti, apice circiter 6-foliati. *Folia* e basi vaginante late linearia, apice sensim acutissima, usque ad 33 cm. longa, 2 cm. lata, subcarnosa. *Racemus* ex axilla folii superioris oriens, 30 cm. longus, erectus vel curvulus, dense multiflorus, basi cataphyllis paucis subacutis imbricatis instructus; pedunculus 12 cm. longus, foliolis triangularibus acutis subremotis praeditus; rhachis 18 cm. longa, teres, breviter albido-pubescent; bractaeae oblongae, acutae, reflexae, circiter 2 mm. longae; pedicelli brevissimi, 2-3 mm. longi, dense pubescentes. *Sepalum* dorsale anguste oblongo-ovatum, obtusum, concavum, incurvum, 2.5-3 mm. longum, 1.75 mm. latum; sepala lateralia oblique triangularia, mentum obtusum, 4 mm. longum formantia, in toto 6 mm. longa, obtusa, margine antico rotundato; sepala omnia extra sordide albido-pubescentia. *Petala* oblique oblongo-lanceolata, semifalcata, acuta, 2.5-3 mm. longa, medio 1.5 mm. lata. *Labellum* columnae adpressum, simplex, subspathulatum, obtusum, 4-4.5 mm. longum, superne 2-2.5 mm. latum, versus apicem marginibus leviter undulatis. *Columna* complanata, circiter 2 mm. longa, pede 4 mm. longo, auriculis subnullis.

Imported from Java and flowered in January 1928, by Messrs. Sander, St. Albans.

Lateral sepals red with yellowish border, apex of mentum yellowish. Dorsal sepal and petals dark red. Lip pale pinkish-red with short white claw. Column yellow with red streaks down sides. Outside of flower covered with short yellowish-white pubescence.

1198. **Epistephium ellipticum** *R. O. Williams & Summerhayes* [Orchidaceae-Neottiae]; species propter folia elliptica petiolata, racemum brevem folia non excedentem distinctissima.

*Herba* terrestris, usque ad 30 cm. alta, radicibus carnis, caule saepius simplici erecto 3 mm. diametro. *Folia* breviter petiolata, elliptica vel oblongo-elliptica, apice abrupte acuta vel acuminata,

basi angustata, 4-6.5 cm. longa, 2.5-3 cm. lata, tenuiter coriacea, glabra, utrinque venis subprominentibus, venis primariis utrinsecus 4, infimis marginalibus, duabus intermediis costae subparallelis superne cum vena marginali conjunctis, supremis costae parallelis et cum ea fere confluentibus. *Racemi* terminales vel axillares, foliis breviores, usque ad 12-flori; bracteae triangulares, acuminatae, sub fructu persistentes et tum 3-4 mm. longae. *Sepala* spathulata, acuta, 2 cm. longa, 3 mm. lata, alba. *Petala* spathulata, 2 cm. longa, 4 mm. lata, alba. *Labelli* duae trientes inferiores columnam circumdantes et ei adnatae; labelli triens suprema dilatata, rotundata, integra, 8 mm. longa, ciliata, medio supra carnosopilosa. *Columna* 1.7 cm. longa, 1.5 mm. diametro, rosea; pollinia 2. *Capsula* linearis, circiter 3.5 cm. longa, 1.5-2 mm. diametro, longitudinaliter nervata, calyculo integro vel breviter dentato 1 mm. longo coronata. *Semina* minuta, plana, ala membranacea pellucida circumdata, vix 1 mm. longa.

TRINIDAD. Valencia Road, Mora Forest end, Sept. 1926, *Freeman, Williams, & Cheesman in Herb. Trinit.* 11324 (type): near Aripo Pool, Dec. 1927, *Freeman & Williams in Herb. Trinit.* 11903.

This species differs markedly from the other Trinidad species, *E. parviflorum* Lindl., and grows in a different habitat, i.e. in the shade of deep forest. *E. ellipticum* with its low stature, and crowded racemes among the elliptical shortly-stalked leaves is not closely related to any of the species described up to the present. Only *E. parviflorum* and *E. petiolatum* Huber have petiolate leaves but these differ in other respects, being tall plants with a long terminal raceme.

1199. **Arisaema Monbeigii** Gamble ms. ex Fischer [Araceae-Arinarie]; ab affinis *A. Wattii* Hook. f., folio unico, appendice brevistipitata basi latiore recedit.

*Herba* dioica, circiter 30 cm. alta, tuberosa, tubere brevi basi complanato, superne bracteae primae laciniis circa 1 cm. longis, bracteis duabus roseis fere ad spatham attingentibus instructo. *Folia* solitaria, trisecta, petiolo 30 cm. longo; segmenta latissima ovata, sessilia, glabra, medium apice repente acuminatum, basi contractum, 15 cm. longum, 13 cm. diametro, lateralia inaequilatera, ad 15 cm. longa, 10 cm. lata, nervis lateralibus subparallelis irregulariter distantibus cum nervo intramarginali junctis, utrinque prominulis, nervulis irregulariter reticulatis conspicuis. *Spathae* pars tubulosa circiter 6 cm. longa, 1.5 cm. lata, purpureo-striata; limbus basi paullo cordatus, multum curvatus et gradatim in caudem gracilem desinens, circa 10 cm. longus, lineis purpureis et albis alternantibus instructus. *Flores*: ♀ tantum notus, ovarium depresso globosum, stigmate panicellato. *Spadix* breviter (ad 5 mm.) stipitata; appendix basi 1 cm. lata, 7 cm. longa, curvata, sensim ab apicem obtusam, 2.5 cm. latam attenuata.

BURMA. Southern Shan States, Taunggyi crags, 1700 m., June, W. A. Robertson 347.

CHINA. Yunnan, Tsekou, Father T. Monbeig.

1200. **Panicum Cooperi** C. E. Hubbard [Gramineae]; affinis *P. Hochstetteri* Steud., sed spiculis paulo minoribus obtusis obscure nervosis differt.

*Basis* ignota. *Culmus* unus visus, geniculato-ascendens, 60 cm. longus, filiformis, teres, ramosus, multinodus, glaber laevisque. *Foliorum* vaginae arctae, demum solutae, subauriculatae, internodiis breviores, tenuiter striatae, laeves, ore et marginibus ciliatae, ceterum glabrae; ligulae minutae, membranaceae, glabrae; laminae lanceolato-lineares, basi leviter rotundatae, longe et tenuiter acutae, 3-6 cm. longae, 3-7 mm. latae, planae, pallide virides, tenuiter et obscure nervosae, glabrae laevesque. *Panicula* laxa, flexuosa, 4-6 cm. longa; rhachis tenuiter filiformis, glabra laevisque; rami solitarii, flexuosi, inferiores ad 5 cm. longi, laxi divisi, glabri laevesque; pedicelli capillares, flexuosi, 1-5 mm. longi, laeves. *Spiculae* ovato-oblongae vel elliptico-oblongae, obtusae, ad 1.8 mm. longae, pallide virides et purpureo-suffusae. *Glumae* inaequales, obscure et minute pubescentes, tenuiter membranaceae, marginibus hyalinis; inferior explanata ovata, obtusa, 1.5 mm. longa, 3-nervia; superior explanata late elliptico-ovata, obtusissima, 1.8 mm. longa, 7-nervia. *Anthoecium inferius* ♂; lemma explanatum late oblongo-ellipticum, rotundato-obtusum, 1.8 mm. longum, 5-nervium, sparse et minute pubescens, tenuiter membranaceum, marginibus hyalinis; palea ovata, obtusa, 1.8 mm. longa, hyalina. *Antherae* lineari-oblongae, circ. 1 mm. longae, flavae. *Anthoecium superius* ♀; lemma anguste ellipticum vel anguste elliptico-ovatum, subacutum, 1.6 mm. longum, albidum, tenuiter coriaceum, laeve; palea 1.5 mm. longa.

TROPICAL AFRICA. Abyssinia: Addis Alam, 2400 m., Sept. 1926, Cooper.

## XXIV.—SETARIA GLAUCA AND S. LUTESCENS.

O. STAPF.

In U.S. Dept. Agr. Bur. Pl. Ind. Invent. Seeds & Plants Import. no. 31, 84, 1914, Stephen C. Stuntz has this paragraph:—"33428—*Pennisetum glaucum* (L.) R. Brown. (*Panicum glaucum* L., Species Plantarum, p. 56, 1753)—This species which has been listed in previous numbers of the inventories as *Pennisetum americanum* (L.) Schum. and in the Index Kewensis as *P. typhoideum* Rich., was first described by Linnaeus (Species Plantarum, p. 56, 1753) as *Panicum glaucum*, based on a specimen from Ceylon. This specimen, which is still preserved in the British Museum, has been identified by Trimen (Journal Linnean Society, vol. 24, p. 136, 1896) as the pearl millet, and it is therefore necessary to use the name *Pennisetum glaucum* for this plant." On p. 86 the following occurs:

" 33615. *Chaetochloa lutescens* (Weigel) Stuntz (*Panicum lutescens* Weigel, *Observationes botanicae*, p. 20, 1772). Seeds of this species have been listed in previous numbers of these inventories as *Chaetochloa glauca* (L.) Scribner, based on *Panicum glaucum* L. (*Species Plantarum*, p. 56, 1753). The type of Linnaeus's species has been determined as *Pennisetum glaucum* (L.) R. Br., hitherto listed in these inventories as *Pennisetum americanum* (L.) Schum. It is necessary, therefore, to adopt for the plant under discussion the earliest specific name, *lutescens*."

The shuffle of names involved in the paragraphs quoted concerns a common and well-known weed and indirectly an important cereal of tropical countries. As the names of both of these run through the botanical literature of over 150 years, it is necessary to proceed with great caution. What then are the facts? This is what Linnaeus says of *Panicum glaucum* in the first edition of his *Species Plantarum*, p. 56.

- (1) *glaucum*. 2. *Panicum spica tereti*, involucellis bifloris fasciculato-pilosis. *Fl. zeyl.* 44.
- (2) *Gramen alopecuroides maderaspatanum*, spica quasi geniculata molli. *Pluk. alm.* 177 t. 190. f. 6.
- (3)  $\beta$  *Gramen paniceum s. Panicum sylvestre*, simplici spica, *Scheuchz. gram.* 46.
- (4)  $\gamma$  *Panicum spica simplici*, aristis aggregatis flosculo subjectis, *Gron. virg.* 134.
- (5) *Panicum indicum altissimum*, spicis simplicibus mollibus in foliorum alis, pediculis longissimis insidentibus. *Tournef. inst.* 515.  
*Habitat in Indiis.*

*Setae in spica longitudine flosculorum. Foliorum vaginae oris pilosae. Dum spica recens prodiit. Flosculi in series dispositi observantur.*

This paragraph consists of 5 synonyms (name phrases with references to their authors), an indication of the distribution of the grass and a short description. Of the synonyms

(1) represents *Pennisetum spicatum* Roem & Schult. (= *P. typhoideum*, Rich.), as is evident from Linnaeus' description in *Flora zeylanica* and the specimen in Hermann's herbarium (at the British Museum) from which, no doubt, this description was drawn up.

(2) is *Elytrophorus articulatus* Beauv. (see Vines and Druce, Morison, *Herb.* 106).

(3) is *Setaria viridis* Beauv. to judge by the very full and excellent description.

(4) is *Setaria glauca* Beauv. (see Hitchcock in *Contrib. U.S. Nat. Herb.* xii. 129).

(5) is doubtful. It may be a *Pennisetum*, but if so, it cannot well be *P. spicatum*.



The plural "Indiis" is no doubt due to the inclusion of Gronovius's plant. The description is evidently not a paraphrase of that given in *Flora zeylanica* sub no. 44. It has nothing in common with the latter except the reference to the hairs at the mouth of the sheaths, and omits much that would obviously suggest itself for inclusion. I do not know when Linnaeus returned Hermann's plants to their owner (A. Gunther in Copenhagen), but it is very probable that they were no longer at his disposal in 1753, so that species of the first edition of *Species Plantarum*, connected by the author, inter alia, with *Flora zeylanica*, need not necessarily rest on Hermann's material; in other words Hermann's specimens cannot be accepted as "types" in such cases without further evidence. This evidence is wanting in the case of *Panicum glaucum*. On the other hand we know that Linnaeus had at that time Gronovius's specimen of *Setaria glauca* Beauv., in his own herbarium (it is written up by him as *Panicum glaucum* and numbered 2 by himself, the number of the species in the first edition of the *Species Plantarum*), and that he became soon aware of the incongruity of the contents of the *Panicum glaucum* of 1753; for in 1758 in his *Systema*, ed. x 870, he confined his *Panicum glaucum* to  $\gamma$  of the *Species Plantarum*, that is Gronovius's plant, the *Panicum glaucum* or *Setaria glaucum* of all subsequent authors. Moreover, he now distinguishes it from  $\beta$  (Scheuchzer's plant, which becomes *Panicum viride*) by the characteristic addition "seminibus undulato-rugosis." In doing so he simply made use of the right, if not obligation, of the author, who breaks up a heterogeneous species, of indicating to which part the original name should adhere in the future. There was now no longer any ambiguity as to what Linnaeus meant by his *Panicum glaucum* and the specimen in his herbarium which corresponded to the revised conception became its "type." It is true, he referred under *Panicum glaucum* once more to *Flora zeylanica* 44, namely in the 2nd edition of the *Species Plantarum*, 83, where the reference follows the revised diagnosis of the *Systema*. It is obviously out of place. The only synonym admitted is Gronovius's; the description is that of the first edition with the addition of "semina striis undulatis notata." The distribution is given still "in Indiis" but with the extension "et Italia."

There seems thus no reason to connect the name *Panicum glaucum* of Linnaeus with any other grass than that to which generations of botanists have been used to apply it. To supersede it by Weigel's name *Panicum lutescens* becomes at the same time unnecessary. In fact, Weigel hardly proposed it seriously. Having given a good description of the grass as he found it in his neighbourhood (Stralsund) he merely says "*lutescens nominaverim*," i.e., I should have called it *lutescens*.

**XXV.—NEW PLANTS FROM SPAIN.** C. E. HUBBARD AND N. Y. SANDWITH.

The collections of Spanish plants in the Herbarium at Kew have been considerably enriched by additions kindly presented by the Rev. E. Ellman as a result of his recent botanical expeditions to Spain, when he was accompanied by C. E. Hubbard in 1924, N. Y. Sandwith in 1926, and E. Nelmes in 1927. These collections have now been fully worked out and incorporated in the general Herbarium. The complete list numbers over twelve hundred species, besides a very large number of varieties and forms, and a few hybrids. It is hoped that it may be found possible to publish this list elsewhere, with notes on the distribution and nomenclature of each species, and on the many points of taxonomic interest which the investigations have revealed. The present paper comprises the descriptions of three new species and one new variety, the elevation of one presumed hybrid to specific rank, and a number of new combinations which have been found to be necessary.

The Spanish collections at Kew are very rich in valuable syntypes collected by the more famous earlier botanical explorers, and would provide a good basis for a modern flora of Spain, but a very large number of recently described species are quite unrepresented, although several have been added as the result of Mr. Ellman's three expeditions. Sets of the extensive and well-known collections of Porta and Rigo, and of Reverchon, are now being laid in from the Willmott and Churchill Herbaria, but their determination is evidently in need of careful revision. It is certain that many more expeditions might be profitably made to this remarkable and still only partially explored region before its extensive flora could be said to be satisfactorily represented in the Herbarium.

**Chrysanthemum paludosum** Poir. Voy. Barb. ii. 241 (1789)  
var. **pinnatifidum** (Willk.) Hubbard et Sandwith, comb. nov.  
*Hymenostemma Fontanesii* Willk. var. *pinnatifidum* Willk. in Bot. Zeit. xxii. 253 (1864) et in Willk. et Lge. Prodr. Fl. Hisp. ii. 103 (1870). *Leucanthemum murcicum* Gay ex Willk. in Bot. Zeit. l.c., nomen.

Alicante: Orihuela; rocky slopes of the Sierra de Callosa, April 28th, 1926, Ellman and Sandwith 422.

A small, slender plant, with very small heads and very deeply, narrowly cut leaves.

*Distr.* South-east Spain and North Africa. Coutinho records typical *C. paludosum* (as *C. glabrum*) from Portugal.

**Limonium carthaginense** (Rouy) Hubbard et Sandwith, comb. nov. × *Statice carthaginensis* (*S. pubescens* DC. × *S. virgata* Willd.) Rouy in Rev. Bot. Syst. Geogr. Bot. i. 182 (1903). *S. carthaginensis* Pau in sched. (1902).

Murcia : Cartagena ; on bare hillsides above Santa Lucia, April 25th, 1926, *Ellman and Sandwith* 376. Cartagena, 1902, *Pau*.

*Distr.* South-east Spain ; Cartagena, where it is frequent. Endemic ?

Nothing like this plant was found in the Herbarium at Kew, so it was sent to Don Carlos Pau who replied as follows : " It belongs to a specific type which is peculiar to Cartagena and of which I possess a large supply of material. One form has the leaves almost oblong-linear ; those of yours are twice as short, spathulate and emarginate. I have it in my herbarium under the name *Statice carthaginensis* Pau, n. sp. In the leaves it resembles *S. emarginata* ; it is very like *S. cossyrensis* ; and also allied to *S. minutiflora* and *S. cordata*." He enclosed a small flowering specimen collected at Cartagena by himself in 1902. There can be little doubt that this is the plant described by Rouy, and that he was wrong in believing it to be a hybrid. It is evidently plentiful at Cartagena and has very distinctive features in the habit, leaves and slightly furfuraceous stems and branches, which might indeed induce a student working with herbarium material only to place it somewhere between *S. pubescens* and *S. virgata*. It may occur in Oran.

**Limonium spathulatum** (Desf.) O. Kuntze, Rev. Gen. Pl. ii. 396 (1891) var. **emarginatum** (Willd.) Hubbard et Sandwith, comb. nov. *Statice emarginata* Willd. Enum. Hort. Berol. 335 (1809). *S. spathulata* Desf. Fl. Atl. i. 275 (1798) var. *emarginata* Boiss. in DC. Prodr. xii. 650 (1848).

Gibraltar : Europa Point, frequent on rocks, May 20th, 1924, *Ellman and Hubbard* 737.

*Distr.* Gibraltar and Morocco.

**Cynoglossum cheirifolium** L. Sp. Pl. ed. i. 134 (1753) var. **immarginatum** Hubbard et Sandwith, var. nov. ; a typo differt nuculis immarginatis facie exteriore rotundata convexa tereti aequaliter glochidiata nec concava depressa.

Malaga : shaly slopes east of Malaga, 60 m., May 7th, 1927, *Ellman and Nelves* 26.

The variety differs from the type only in the characters described above, but these are sufficient to give the nutlets a perfectly distinct appearance. No other material of it has been seen, although the species is very well represented in the Herbarium at Kew.

**Teucrium Ellmanii** Hubbard et Sandwith, sp. nov. ; affinis *T. eriocephalo* Willk., indumento passim densissimo lanato, habitu pulvinato densissime fastigiato-ramoso, capitulis minoribus multo densioribus, floribus minoribus differt.

*Planta* perennis, suffrutescens, fere pulvinata, ad 26 cm. alta, tota lana densa alba vel siccitate flavescenti-alba vestita. *Caules* e basi complures, sublignosi, 2.5-3 mm. diametro, centralis erectus,

laterales decumbenti-ascendentes, omnes ramis permultis gracilibus floriferis densissime fastigiatis praediti; rami internodiis 1-2.5 cm. longis, in axillis foliorum inferiorum ramulos minutos foliatis, superiorum capitula subsessilia vel saepius pedunculata gerentes. *Folia* oblonga vel cuneata, obtusa, amplexicaulia, 4-8 mm. longa, 1.5-2.5 mm. lata, vetustiora reflexa, juniora patentia vel saepe arcuato-ascendentia, crassa, fragilia, valde revoluta, marginibus undulato-crenatis. *Inflorescentia* e capitulo terminali et paribus 2-5 erecto-ascendentibus composita; paria inferiora fere sessilia, superiora ad 3-18 mm. conspicue pedunculata. *Capitula* globoso-oblonga, 7-10 mm. longa, 7-8 mm. diametro, densissima, albo-sericea, lanata; bractae ad 3.5 mm. longae. *Flores* albi, subsessiles. *Calyx* campanulatus, 3 mm. longus, ad 1.75 mm. latus, extra lanato-villosus, intus minute sparse pilosulus, dentibus triangularibus 1 mm. longis ad 0.75 mm. latis. *Corolla* ad 5 mm. longa, tubo incluso extra versus apicem intus fauce albo-piloso; labium inferius lobo medio concavo rotundato dorso piloso versus basim utrinque minute gibboso-lobulato tum lobulis conspicuis ovato-oblongis obtusis, lobis lateralibus obtuse triangularibus margine superiore longe ciliatis. *Staminum* filamenta longiorum 3.5 mm. longa, breviorum 2.5 mm. longa, versus basim pilosa. *Stylus* glaber, cum stigmatibus fere 5 mm. longus.

SPAIN. Almeria; on limestone mountains near the sea west of Almeria, growing with *T. intricatum* and *Galium ephedroides*, May 29th, 1924, *Ellman and Hubbard* 925 (type in Herb. Kew.).

This species and the next are clearly allied to *T. eriocephalum* Willk., and have probably been confused with that species by botanists visiting Almeria; but no unprejudiced observer who has seen the true *T. eriocephalum* from Lanjaron and the neighbouring villages can fail to distinguish them at a glance both by their habit and their facies. Specimens of *T. eriocephalum* from Lanjaron collected by Winkler, and cited in Suppl. Fl. Hisp. as seen by Willkomm himself, are in the Herbarium at Kew, and exactly match the figure and description in Willk. Illustr. The red, loosely hairy stems of the fully-grown plant are very characteristic. It evidently flowers much later than both of the new species at Almeria, as *Ellman and Sandwith* 719 collected at Lanjaron on May 15th was showing no sign of flowering for a considerable time.

***Teucrium almeriense* Hubbard et Sandwith, sp. nov.**; affinis *T. eriocephalo* Willk. atque *T. Ellmanii* Hubbard et Sandwith, ab illo statura humili, indumento albo densissimo, capitulis subsessilibus parvis globosis densis approximatis, floribus minoribus; ab hoc habitu multo simpliciore ac humiliore, indumento multo minus dense lanato, capitulis subsessilibus globosis approximatis, calycis dentibus dentatis differt.

*Planta* humilis, laxe caespitosa, perennis, suffrutescens, 8-12 cm. alta, tota lana brevi alba vestita. *Caules* e basi complures sublignosi 1-1.5 mm. diametro, ramis floriferis gracilibus fere simplicibus



suberectis, internodiis 4-10 mm. longis, in axillis foliorum inferiorum ramulos minutos foliatis, superiorum capitula omnia aequaliter subsessilia fere spicata gerentibus. *Folia* lineari-oblonga, obtusa, amplexicaulia, 4-6 mm. longa, ad 1.5 mm. lata, patentia reflexa vel ascendentia, crassa, fragilia, valde revoluta, marginibus undulato-crenatis. Inflorescentia e capitulo terminali atque paribus 2-7 subsessilibus vel brevissime pedunculatis satis approximatis vel etiam apice aggregatis composita. *Capitula* parva, globosa, 5-7 mm. longa atque diametro, densa. *Flores* albi, subsessiles. *Calyx* ut in *T. Ellmani* sed dentibus 2-3-dentatis. *Corolla* ad 5 mm. longa; labium inferius ut in *T. Ellmani* sed pilis in dorso lorum basi conspicue tuberculatis, lobis lateralibus sparsius ciliatis.

SPAIN. Almeria: rocky slopes of the Sierra de Gador, Almeria, May 24th, 1927, *Ellman and Nemes* 350 (type in Herb. Kew.).

**Juncus Ellmanii** Hubbard, Sandwith, et Turritt, sp. nov.; affinis *J. squarrosus* L., sed culmis plerumque altioribus in medio vel supra medium unifoliatis, foliorum radicalium vaginis angustioribus, laminis multo gracilioribus flaccidioribus glaucioribusque, floribus antherisque paulo longioribus, capsula tepalis conspicue brevior differt.

*Planta* perennis, dense caespitosa. *Caules* erecti, 30-55 cm. alti, graciles, stricti, rigidi, solidi, laeves, inferne compressi canaliculatique, superne teretes, basi foliati, in medio vel supra medium unifoliati. *Folia* basalia numerosa; vaginae breves, 1-4 cm. longae, angustae, pallide fuscae; laminae tenuiter filiformes, setaceae, gracillimae, strictae vel flexuosae, teretes, supra leviter canaliculatae, erectae vel patentes, flaccidae, glabrae, laeves, basales 6-30 cm. longae, 0.5-0.6 mm. diametro, caulinae 1-6 cm. longae. *Inflorescentia* terminalis, 5-10 cm. longa. *Flores* 5-6.5 mm. longi. *Tepala* subaequilonga, oblonga, lanceolato- vel ovato-oblonga, obtusa vel apice involuta acuta, olivacea, apice marginibusque latis scariosis albis, interiora exterioribus paulo breviora. *Stamina* 6; antherae lineares, 3-3.5 mm. longae, flavae, filamentis basi dilatatis 0.75 mm. longis. *Ovarium* pallide fuscum, 1.75 mm. longum; stylus 1.5 mm. longus; stigmata 2 mm. longa, purpurea. *Capsula* ellipsoidea, obtusa, 3.2 mm. longa, 2.2 mm. lata, tepalis longe superata; semina ut in *J. squarrosus*.

SPAIN. Madrid: Escorial; in moist places on slopes of Cerro de los Avantos, 1350 m., June, 1924, *Ellman and Hubbard* 1023 (type in Herb. Kew.); in meadows near Escorial, June-July, *Graells* (Herb. Mus. Brit.); Sierra de Guadarrama, above Chozas, June 1854, *Bourgeau* 2298 (Herb. Kew.). Avila: near Bohoyo, in damp pastures at the base of the Sierra de Gredos, July 1863, *Bourgeau* 2551 (Herb. Mus. Brit.).

This species has been confused with *J. squarrosus* L., which grows in Northern Spain and Portugal, and may possibly occur in Central Spain. The specimens cited are remarkably uniform and have a strikingly distinct facies; the cauline leaf, long flaccid radical

leaves, long pale perianth segments and short capsules distinguish it at once from its ally. Cross-sections of the leaves of the two species have been found to be extraordinarily different from one another. *J. Ellmanii* may prove to be plentiful on the mountain ranges of Central Spain. The description of the capsule was taken from *Bourgeau* 2551.



*Juncus Ellmanii* Hubbard, Sandwith, et Turrill. A Transverse section of lamina, from dried specimen ( $\times 70$ ). B and C Bracts ( $\times 7$ ). D and E Outer and inner tepals ( $\times 7$ ). F Stamen ( $\times 7$ ). G Flower ( $\times 7$ ).

***Avenastrum albinerve* (Boiss.) Hubbard et Sandwith, comb. nov.** *Avena albinervis* Boiss. Voy. Esp. 656, t. 176 (1839-45); Willk. et Lge. Prodr. Fl. Hisp. i. 69 (1861).

Cadiz: Algeciras; abundant towards the summit of the Sierra de Palma, May 16th, 1924, *Ellman and Hubbard* 593.

*Distr.* South-west Spain, Portugal and Morocco.

***Avenastrum bromoides* (Gouan) Hubbard et Sandwith, comb. nov.** *Avena bromoides* Gouan, Hort. Monsp. 52 (1762); Willk. et Lge. Prodr. Fl. Hisp. i. 69 (1861).

Segovia: in rocky places near Segovia, June 7th, 1924, *Ellman and Hubbard* 1157. Malaga: hills outside Malaga, May 21st, 1924, *Ellman and Hubbard* 744. Granada: on mountains south-east of Granada, 900 m., May 23rd, 1924, *Ellman and Hubbard* 763; on Silla del Moro at Granada, May 18th, 1926, *Ellman and Sandwith* 734.

*Distr.* Western Mediterranean Region from Italy and Algeria westwards (excluding the Atlantic islands).

***Avenastrum sarracenorum* (Gdgr.) Hubbard et Sandwith, comb. nov.** *Avena sarracenorum* Gdgr. in Bull. Soc. Bot. France,

lx. 420 (1913). *A. filifolia* var. *velutina* Boiss. Voy. Esp. ii. 655 (1839-45); Willk. et Lge. Prodr. Fl. Hisp. i. 68 (1861).

Granada: on slopes of Cerro Calar north-east of Guejar-Sierra, 1350 m., May 24th, 1924, *Ellman and Hubbard* 814.

*Distr.* South Spain; Sierra de Alfacar and Sierra Nevada. Endemic.

**Avenastrum sulcatum** (J. Gay) *Hubbard et Sandwith*, comb. nov. *Avena sulcata* J. Gay in Delastre Fl. Vienne, 477, t. 4 (1842); Willk. et Lge. Prodr. Fl. Hisp. i. 69 (1861).

Cadiz: Algeciras; common on slopes of Sierra de Palma, May 16th, 1924, *Ellman and Hubbard* 606.

*Distr.* Iberian Peninsula and West France.

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## XXVI.—THE LAST ISSUE OF THE JOURNAL DE BOTANIQUE. M. L. GREEN.

In preparing the manuscript of the Index Kewensis, Supplement VII, for the press, the writer was confronted with the difficulty of assigning the correct date to those new names that appeared in Journal de Botanique, 1910-13, xxii (Sér. II. t. iii.) pp. 1-104. This was received at Kew in June, 1925, together with a postcard from the Muséum National d'Histoire Naturelle (Phanérogamie) Paris, explaining that the issue was printed but not distributed at the time of the death of the Editor, M. Louis Morot, and that it had recently been found in a cupboard in the Laboratoire d'Organo-graphie.

In order to ascertain whether any copies were distributed before 1925, a letter was sent to Professor Lecomte of the Muséum d'Histoire Naturelle Botanique, who replied that although the issue was printed in 1914, it was not distributed till 1925. This, therefore, according to the International Rules, is the correct date of publication.

The possibility that reprints of one or more of the three papers included in this unfinished volume may have been distributed prior to 1925 cannot entirely be excluded. The papers are (1) Dubard & Dop, Étude de quelques types nouveaux ou peu connus de Rubiacées de Madagascar. (2) A. Renard, De l'action germinatrice des différents corps alimentaires. (3) R. Viguier, Contribution à l'étude de la Flore de la Nouvelle-Calédonie.

Information regarding dates of receipt of reprints of any of these papers would be much appreciated.

The following is a list of the new genera, species and transferences contained in the work.

**Princea**, Dubard & Dop in Journ. de Bot. 1910-13, xxii. 2 (impress. 1914, distrib. 1925)—gen. nov. (Rubiaceae).

,, *arcuata*, Dubard & Dop, l.c.—Madag.

**Alleizettea**, Dubard & Dop, l.c. 6.—gen. nov. (Rubiaceae).

,, *bracteata*, Dubard & Dop, l.c.—Madag.

- Chomelia cinerea*, Dubard & Dop, l.c. 11 : *Ixora cinerea*.  
 „ *Alleizetti*, Dubard & Dop, l.c. 12.—Madag.  
*Enterospermum pruinosa*, Baill. ex Dubard & Dop, l.c. 13 : *Ixora pruinosa*.  
**Gallienia**, Dubard & Dop, l.c. 18.—gen. nov. (Rubiaceae).  
 „ *sclerophylla*, Dubard & Dop, l.c.—Madag.  
*Pyrostria buxifolia*, Hochr. ex Dubard & Dop, l.c. 23 : *Plectronia buxifolia*.  
 „ *Alleizetti*, Dubard & Dop, l.c. 24.—Madag.  
*Psychotria Princei*, Dubard & Dop, l.c. 28.—Madag.  
*Myodocarpus Baillonianus*, Harms ex Vig. l.c. 45, in adnot.—N. Caled.  
 „ *intermedius*, Baill. ex Vig. l.c. 46, in syn. : *M. involu-cratus*.  
*Delarbreia Harmsi*, Vig. l.c. 52.—N. Caled.  
 „ *longicarpa*, Vig. l.c. 53.—N. Caled.  
 „ *oblonga*, Baill. ex Vig. l.c. in syn. : *D. longicarpa*.  
 „ *montana*, Vieill. ex Vig. l.c.—N. Caled.  
 „ *arborea*, Vieill. ex Vig. l.c. 54, in syn. : *D. montana*, var. *arborea*, Vig.  
 „ *crassiuscula*, Baill. ex Vig. l.c. in syn. : *D. montana*.  
 „ *Balansae*, Baill. ex Vig. l.c. 55, in syn. : *D. paradoxa*, var. *Balansae*, Vig.  
*Tieghemopanax Lecardi*, Vig. l.c. 66.—N. Caled.  
 „ *Schlechteri*, Vig. l.c. 71 : *Polyscias Schlechteri*.  
*Polyscias gigantea*, Vig. l.c. 72.—N. Caled.  
*Botryodendrum lobatum*, Panch. ex Vig. l.c. 80, in syn. : *Meryta microcarpa*.  
**Chondylophyllum**, Panch. ex Vig. l.c. in syn. : *Meryta* Forst. (Araliac.).  
 „ *lobatum*, Panch. ex Vig. l.c. in syn. : *Meryta microcarpa*.  
 „ *Guilleini*, Panch. ex Vig. l.c. in syn. : *Meryta microcarpa*.  
**Botryomeryta**, Vig. l.c. 84.—gen. nov. (Araliaceae).  
 „ *Lecardi*, Vig. l.c.—N. Caled.  
*Dizygotheca coenosa*, Vig. l.c. 93.—N. Caled.  
*Schefflera LeRati*, Vig. l.c. 99.—N. Caled.  
 „ *Pancheri*, Baill. emend. Vig. l.c. 103.—N. Caled.

## XXVII.—MISCELLANEOUS NOTES.

The following appointments have been made by the Secretary of State for the Colonies :—Mr. J. L. ILLINGWORTH, B.A., Curator and Agricultural Superintendent, Virgin Islands ; Mr. C. B. C. HANDLEY, B.Sc., Assistant Agricultural Officer, Kenya ; Mr. R. E. MOREAU, Secretary and Librarian, Mr. P. J. GREENWAY, Systematic Botanist, Captain E. M. NICHOLL, Manager, Kwamkoro Estate, East African Agricultural Research Institute, Tanganyika Territory ; Mr. H. MARSLAND, B.Sc., Cotton Investigator, Agricultural Department, Tanganyika Territory.



Mr. C. A. SMITH, B.Sc., of the Division of Botany, Horticulture and Entomology, Department of Agriculture, Pretoria, has been appointed by the Government of the Union of South Africa, Assistant for South Africa in the Herbarium at Kew, in succession to Miss I. C. Verdoorn, who returned to South Africa on completion of her term at Kew (*K.B. App. I.* 1928, p. 1).

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LAURENCE ATHELSTAN MOLESWORTH RILEY.—By the death on March 13th, at the early age of 39, of L. A. M. Riley, Kew has lost a valued collaborator. Laurence Riley was the eldest son of Athelstan Riley of Trinity Manor, Jersey, and was educated at Eton and Pembroke College, Oxford, where he took the degree of B.A., eventually proceeding to M.A. in 1927. After leaving college he engaged in journalism for a few years until the outbreak of the war, when he obtained a commission in the Royal Jersey Militia. To his great disappointment, however, he was unable to see active service owing to his suffering from chronic asthma, to which he had been a martyr from boyhood.

In 1920 Riley came to work in a voluntary capacity in the Herbarium at Kew, and carried out a much needed re-arrangement of the *Onagraceae*, which led to a paper on *Raimannia* and allied genera. As a sequel to naming a collection of dried plants from Sinaloa, N.W. Mexico, he undertook a critical enumeration of the known flora of that State, publishing five parts, covering the whole of the Polypetalae, during 1923-24. In 1924 he was appointed Botanist to the "St. George" Pacific Expedition, and proceeded on the "St. George" to Madeira, Trinidad and Panama, making botanical collections at each of these places. Unfortunately while at Panama he became seriously ill, and on medical advice returned to England. However, his scientific colleagues continued the botanical work of the Expedition, and the plants which they collected were forwarded to him for determination. The botanical results of the "St. George" Expedition were published by Riley in a series of papers dealing with the floras of Madeira, Trinidad, the Galapagos Islands, Rapa and Panama, while shortly before his death he was engaged on the study of the remaining collection, that from the little-known island of Gorgona off the coast of Colombia.

Some years ago he settled at North Warnborough, near Odiham in Hampshire, and commenced the formation of what was virtually a private botanic garden, from which all plants of horticultural origin were rigorously excluded. He was particularly successful in the cultivation of new introductions, and raised numerous Balkan plants of which seeds had been sent to him from Kew, generously supplying material, both living and dried, for study and preservation in the Kew Herbarium. The garden in 1927 contained 438 species, and as about 700 packets of seeds had been received for sowing in 1928, at least 1,000 species would have been in cultivation by the end of the year. The collection is being transferred to Mr. W. E.

Th. Ingwersen, who will carry it on as the "Laurence Riley Memorial Collection" in a special part of his Alpine and Hardy Plant Nursery near East Grinstead, where the plants will be available for study by botanists.

Riley's published work was characterized by thoroughness and polish, and was highly esteemed not only in this country but by botanists in the United States. His varied interests, which included history, music, literature and entomology, in addition to botany, brought him into touch with a wide circle of friends, to whom his charm of manner and quaint humour endeared him. His loss will be keenly regretted not only by his personal friends and colleagues at Kew, and those on the scientific staff of the "St. George" Expedition, but by all engaged in the study of the Tropical American Flora.

T. A. S.

LIST OF BOTANICAL PAPERS BY THE LATE MR. L. A. M. RILEY.

- Oecology of *Montia fontana* L. (Journ. Bot. 1907, xlv. pp. 211-12; 1908, xlv. p. 92).  
Notes on *Raimannia* and Allied Genera (with T. A. Sprague) (Kew Bull. 1921, pp. 198-201).  
Meristic Floral Variation in *Galieae* i., ii. (Journ. Bot. 1922, lx. pp. 230-232; 1924, lxii. pp. 20-21).  
Contributions to the Flora of Sinaloa, i.-v. (Kew Bull. 1923, pp. 103-115, 163-175, 333-346, 388-401; 1924, pp. 206-222).  
Variable Aestivation of *Ranunculus bulbosus* and *R. acer* (Journ. Bot. 1923, lxi. pp. 209-212).  
Materials for the Flora of British Honduras, i. (with T. A. Sprague) (Kew Bull. 1924, pp. 1-20).  
The Mexican and Central American Species of *Ouratea* (Kew Bull. 1924, pp. 101-111).  
Further Notes on *Ouratea* (Kew Bull. 1924, pp. 363-365).  
A Recension of *Lopezia* (with T. A. Sprague) (Journ. Bot. 1924, lxii. pp. 7-16).  
Notes on Madeira Plants ("St. George" Pacific Expedition, 1924) (Kew Bull. 1925, pp. 26-33).  
Critical Notes on Trinidad Plants ("St. George" Pacific Expedition, 1924), (Kew Bull. 1925, pp. 133-142).  
Critical Notes on Galapagos Plants ("St. George" Pacific Expedition, 1924), (Kew Bull. 1925, pp. 216-231).  
Notes on the Flora of Rapa ("St. George" Pacific Expedition, 1924-5) (Kew Bull. 1926, pp. 51-56).  
Revision of the Genus *Calycolpus* (Kew Bull. 1926, pp. 145-154).  
New Species from Panama, Coiba and Cocos Islands ("St. George" Pacific Expedition, 1924-5) (Kew Bull. 1927, pp. 119-127).

On the 14th March a pleasant ceremony took place at the residence, in London, of the American Consul-General, when Mr. H. N. RIDLEY, C.M.G., F.R.S., F.L.S., was presented with the Frank N. Meyer Medal for Distinguished Services in Plant Introduction. This medal is in honour of a distinguished American Agricultural Explorer of the Office of Plant Introduction, who travelled extensively in Asia for thirteen years and lost his life in the waters of the Yangtsi Kiang River. The award of the medal is entrusted to the President of the American Genetic Association by the staff of the Office of Foreign Plant Introduction of the Department of Agriculture of the



United States Government. This year it has been presented to Mr. Ridley in recognition of the important part he played in establishing plantations of the Para Rubber Tree in the Oriental Tropics. The American Consul-General, Mr. Horace L. Washington, who was accompanied by Mrs. Washington, made the presentation in the presence of Mr. Boylston A. Beal, Honorary Counsellor to the American Embassy, Mr. Robert L. Buell, Second Secretary to the Embassy, the Assistant Director and Dr. J. M. Dalziel.

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**Botanical Magazine.**—Part iii of Vol. clii (1926) of the Botanical Magazine, which was published in March, 1928, contains the following illustrations :—

*Watsonia Beatricis* Math. & L. Bolus (t. 9139), with scarlet-orange flowers, considered to be the most strikingly beautiful of the Watsonias, from Cape Colony; *Actinidia coriacea* Dunn (t. 9140), from Central Szechuan to North-eastern Yunnan; *Halimum umbellatum* Spach. (t. 9141), a small evergreen shrub with white flowers, from South-west Europe and North Africa, figured from a plant grown in a border at Kew; *Clematis macropetala* Led. (t. 9142), with axure- to purple-blue flowers, from the mountains of Northern China; *Trollius yunnanensis* Franch. (t. 9143), common in the Alpine meadows of North-western Yunnan, figured from a plant grown in a boggy corner of the Rock Garden at Kew; *Phlomis Bovei* Noé (t. 9144), figured from a plant raised at Kew from seed collected by Mr. St. Quintin in Algeria; *Primula bella* Franch. (t. 9145a), conspicuous for the ball of white hairs which closes the throat of the purple-rose corolla, a tiny plant from Yunnan at 3000-4000 m. altitude; *Raoulia subsericea* Hook. f. (t. 9145b), an early coloniser of shingle in the mountains of the South Island, New Zealand; *Schizandra rubriflora* Rehder & Wilson (t. 9146), a handsome climber with deep crimson flowers and claret-red fruits, from Central Szechuan; *Rhododendron semibarbatum* Maxim. (t. 9147), with solitary, short-stalked, pinkish-white flowers almost hidden below the terminal leaves, from Japan; *Fritillaria acmopetala* Boiss. (t. 9148), from Western Syria and Southern Asia Minor (this name was formerly given to *F. Elwesii* Boiss.); *Primula involucrata Wardii* Stapf (t. 9149), with pale mauve to pink or purple, rarely white, flowers, the Chinese representative of the Himalayan *P. involucrata*; *Trias picta* Parish (t. 9150), with yellowish-green to yellowish flowers densely spotted with red, from lower Burma.

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**Journal of the Botanical Society of South Africa.**—Part xiii, 1927, of the Journal of the Botanical Society of South Africa has recently been received. This issue consists of thirty pages of text, which are liberally illustrated with fine photographs and plates. Two of the plates contain coloured figures of new species of *Mesembryanthemum* and its allies. The principal contributors are Mrs.

L. Bolus, with several papers on *Mesembryanthemum* and allied genera, Mr. J. W. Mathews, who writes on South African succulents, and Prof. R. S. Adamson, who gives an interesting account of the alien trees of Kirstenbosch. An increased list of members of the Society completes an attractive publication.

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**Department of Agriculture, Central Provinces\*.**—Bulletin xxii of the Department of Agriculture, Central Provinces, India, is devoted to the cultivation of Groundnuts. Though written primarily for the cultivator in the Central Provinces this Bulletin contains much which is of interest to those concerned with the cultivation of this crop in other parts of the world. After describing its place in rural economy the authors deal with varieties, climatic conditions, seed selection, cultivation, harvesting, costings, marketing, diseases and pests.

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**Harvard Botanical Gardens, Cuba†.**—This is the first published report of these Gardens, which were started in 1900, and covers a period of over a quarter of a century. The bulletin is divided into sections, which deal with the meteorology of the station, the work carried out on cane breeding, and a descriptive list of the trees grown in the arboretum. This last is alphabetically arranged and gives information as to the size, rate of growth, and the object for which the tree is grown. The section on fruit gives a list of the fruit collection and short notes on the Avocado pear and Citrus fruits. Suitable stocks of the latter are discussed. The seedling Tangerine and *Citrus decumana* are said to give excellent results, while the defects of the sour orange, the rough lemon and the native lime are mentioned. The results of various trials of legumes, tropical cereals, forage grasses and fodder legumes are fully dealt with. Vegetables receive considerable attention and the time of planting and time of maturity for a very large number of named varieties are stated.

The bulletin closes with the Annual Report for 1926 and in this the flowering seasons of over 500 species grown in the Gardens are tabulated.

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\*By W. Youngman and D. L. Janoria. The Government Press, Nagpur, 1927, pp. 16. Price 2 annas.

†Report of the Harvard Botanical Gardens, Soledad Estate, Cienfuegos, Cuba (Atkins Foundation), 1900–1926, by Robert M. Grey. Cambridge; Harvard University Press, pp. 113, 1927.

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